EAT FAT
Your Life Depends On It!
by Fred Rohé
EAT FAT
Your Life Depends On It

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TABLE OF CONTENTS

Introduction . . . 5

Foreword . . . 6

Author’s Preface . . . 7

Chapter One: Smart Fat, Friendly Fat . . . 9
  • Fat -- Even More Important Than Vitamins & Minerals . . . 10
  • Friendly Fats -- Cleanses, Fuels, Lubricates, & Protects . . . 11
  • Don’t Forget the Kids -- Their Brains are 50% EFAs . . . 12
  • Quantity Recommendations for EFAs . . . 12

Chapter Two: Distinguishing Good Fat From Bad . . . 13
  • The Fatty Acids . . . 13
  • The Kinky World of the Triglycerides . . . 13-14
  • Saturated Fat (Energy Fat) -- Good & Bad . . . 15
  • Monounsaturated Fat (Neutral Fats) . . . 16
  • Polyunsaturated Fat (Structural Fats) -- Good and Bad (Really Bad) . . . 16-17
  • Saturated Fat vs. Trans Fatty Acids . . . 18
  • The Subtle Forces That Create Bad Fat . . . 19
  • You Have Been Ripped Off . . . 19
  • How To Improve the Quality of the Fat You Get From Food . . . 20

Chapter Three: What Happens to Fat in Your Body--Why Your Life Depends On It . . . 21
  • The Ten Stage Interaction Between You and Fat . . . 21
    Figure: Cell Membrane Structure . . . 22
  • The Metabolic Pathways of Essential Fatty Acids (EFAs) . . . 23-24
  • The Eicosanoid Cascade . . . 25
  • The Functions of Eicosanoids . . . 25
  • Symptoms of Prostaglandin Deficiency . . . 26
  • The Cause of Prostaglandin Deficiency . . . 26

Chapter Four: FRESH Vegetable Oil—The Best Fat of All . . . 27
  • A Blueprint for Making FRESH Vegetable Oils . . . 27-28
    Figure: The Vegetable Oil Quality Pyramid . . . 29
  • The New FRESH Technology vs. the Old Technology: The Revelation of REAL Quality . . . 30
    Figure: Oil Pressing At a Glance . . . 31
  • Trading Quantity for Quality . . . 30
  • Surpassing “Old Fashioned Quality” . . . 32
  • The Cost Factor . . . 33
Chapter Five: Toward a Balanced Approach . . . 35
• EFA Supplementation . . . 35
• Phase One: Building Your EFAs . . . 36
• Flax Oil Spinoffs . . . 36-37
• Phase Two: Balancing Your EFAs . . . 37-38
• Kids Have Special Needs . . . 39
• Dietary Guidelines . . . 40
• Goodbye Lipohysteria . . . 40-41
• Goodbye Cholesterophobia . . . 41-42

Chapter Six: Losing Weight By Getting Off the Low Fat Bandwagon . . . 43
• How to Lose Weight by Adding Fat--Good Fat . . . 43-44
• The Important Point That’s Often Overlooked . . . 44
  Figure: 18 Ways to Lower Fat . . . 45

Chapter Seven: Where To Find FRESH Vegetable Oils . . . 46
• The Category Player . . . 46
• The Niche Players . . . 47
• Where You Won’t Find Fresh Vegetable Oils . . . 47-48

Chapter Eight: Fresh Vegetable Oil Cookery . . . 49
• Fresh Vegetable Oil Profiles . . . 49
• Other Profiles . . . 49-51
• Fresh Vegetable Oils in Your Kitchen . . . 52
  Cold Preparation Recipes . . . 52-59
  Low Heat Recipes . . . 60
  Medium Heat Recipes . . . 61-65
  High Heat Recipes . . . 66-71

Appendix One: Recommended Reading on Fats & Oils . . . 72

Appendix Two: Fatty Acid Profiles for Commonly Available Fresh Vegetable Oils . . . 73

Glossary: Lipid Language . . . 74
A Lay Person’s Guide To Technical Fats & Oils Terms . . . 74-77

Index . . . 78-95
INTRODUCTION

The no-fat, low fat fad has assumed the magnitude of a tidal wave. Looking at grocery stores, it’s clear that all it takes to get shelf space these days is to print “no fat” or “low fat” on your label and you’re in. And yet, if you don’t get 25 – 30% of your calories from fat, you’re likely to develop health problems, perhaps severe ones. That’s the fat quantity issue, which this book addresses remarkably well.

The other vital issue addressed in this book is fat quality, and rarely has it been addressed nearly as well as in these pages. The selling of distorted fat, a major root cause of killer diseases, is worth billions of dollars. In this little gem of a book, Fred Rohé stands up to the tidal wave of ignorance and greed like David confronting Goliath.

Make no mistake about it: this book is radical. If you take the advice given here – and you should – you will make radical changes in attitude and practice. You won’t be trying to avoid fat; instead, you’ll be avoiding bad fat. You’ll know how to tell the assume “low fat” means “good for you”. You’ll know how to tell the difference between good and bad fat, know how to make practical, daily use of good fat. And with this knowledge your chances of enjoying optimum health will improve enormously.

It’s almost impossible to give enough emphasis to the importance of good fat. In my practice, working with patients and medical doctors, I address this issue over and over again. Truly, almost no one – including the so-called “experts” – knows what it is. The great value of EAT FAT is that it explains good fat clearly and precisely in layperson’s language.

I am truly glad that Fred Rohé has added his voice to the thin chorus of voices raised against the din of misinformation and disinformation regarding fats. This handy booklet speaks from the nutritional “leading edge”, sharing rare information that will be invaluable to health professionals and consumers alike.

John Finnegan, Malibu, California
Author of Recovery From Addiction and The Facts About Fats, Celestial Arts, Berkeley, CA
EAT FAT: YOUR LIFE DEPENDS ON IT

FOREWORD

Eat fat? What’s going on here? I thought we’re supposed to not eat fat.

That’s a common misconception. In general, most people should eat a lot less fat—on the order of 40% less. But—and this is an extremely important “but”—there are certain fats we must eat if we are to realize optimum health. Not eating fat is truly off the mark. We need to get the facts about fats straight if we are to make intelligent dietary choices.

One type of fat is called essential fatty acids because they really are essential. We need them from the time our bodies are forming in our mother’s womb until we die. To call these fats “essential” is scientifically exact.

The combined effect of modern agribusiness, food processing, and the shopping, cooking, and eating habits of most Americans is that essential fatty acids are deficient and fat quality is extremely poor. In most people, this deficiency is clinically significant. Essential fatty acid deficiency and low grade fats are making a substantial contribution to the widespread unwellness, common illnesses, and chronic degenerative diseases that are making America one of the world’s unhealthiest nations.

This is taking place just as the ongoing crisis in the American “health care system” (actually a disease management industry) is making it harder to get professional medical advice on the details of our individual health needs. Therefore, more and more people are equipping themselves to take responsibility for their own health. This book is an excellent way for you to do exactly that by getting the fat story straight.

Fred Rohé opened the prototype natural foods store in 1965 and has been on the leading edge of the natural foods industry ever since. His emphasis has always been on communicating health information, and he has studied the scientific literature on fats and consulted with leading researchers in the field. In this book, Fred has distilled out the essential facts you need in order to know exactly how it is that you should, in the interests of your health and longevity, eat fat.

Scott E Anderson, M.D.
Nutritional Medicine, San Francisco Preventive Medical Group
and the Preventive Medical Center of Mann, California
AUTHOR’S PREFACE

My natural products adventure started in 1964 when I realized that I had a chance to feel a lot better if I would change my lifestyle. I did that, and felt so much better that I decided to start a natural foods store as a way to do two things simultaneously: (1) share what I was experiencing and learning, and (2) make a living. I did that too, in 1965, and in one form or another have been doing it ever since.

Starting with that store—New Age Natural Foods—I’ve touched the natural foods trade in many different ways. I’ve retailed, wholesaled, brokered, owned a marketing company, written articles and three health oriented books—The Complete Book of Natural Foods, The Zen of Running, and Dr. Kelley’s Answer to Cancer. In all of this, I’ve always been driven by the impulse to discover and share what’s natural, excellent, ecological, and has the potential to advance people on the road to optimum health.

During my tenure as a natural foods retailer (1965 – 73), I started a trade association called Organic Merchants. There were twelve of us at the start and three years later there were 120—mostly hippie entrepreneurs, long-haired and idealistic. The premise we operated on was simple: Informed consumers will change the marketplace. So we undertook to provide the information in the form of educational pamphlets.

A couple of times a year we would meet at California wilderness sites in places like Mt. Shasta and Big Sur to decide what our educational agenda should be. Then I would write the pamphlets, my friend Paul Hawken would print them through his company, Erewhon, and all of us would give them away in our stores.

Our efforts weren’t responsible for the rapid growth of the natural foods industry, but they were a factor. What made our campaign even more effective than it otherwise would have been was the fact that most of the underground newspapers of the day reprinted our little missives, greatly increasing their circulation.

The single pamphlet that had the greatest impact was called The Sugar Story. To this day I still meet people who say, “Oh, you wrote The Sugar Story? Why, that thing changed my life!” And for a long time that puzzled me: It was no more than five hundred words long and didn’t really contain a lot of information. More than anything else it was a narrative that described how I discovered that “raw” sugar was just white sugar wearing a jacket made from molasses.

It was probably twenty years after I wrote it that I figured out why The Sugar Story packed such a wallop. You see, I had sold people a lot of “raw” sugar based on what the manufacturer had told me. I had allowed myself to be duped and had thereby duped my customers. That outraged me. My business was based on good will and I earned that good will by being straight with my customers, treating them like I would have liked to be treated. And that’s why the story had impact: I felt ripped off, and the writing conveyed my feeling. That little sugar story had passion.

It’s in the spirit of The Sugar Story that I have written this book. However, it’s not just similar in spirit. The story here has the feeling of outrage, but goes far beyond The Sugar Story in terms of facts. I’ll be as blunt as I know how to be: You have been ripped off, and if you don’t understand that ripoff and what to do about it, your best efforts to gain and maintain optimum health will not be good enough.
“The fats and oils story may well be the greatest scandal of ignorance, disinformation, and greed in the entire history of food production. The effects of poorly processed oils are a major causative factor in heart disease, cancer, and most modern diseases that have affected hundreds of millions of people all over the world.”

John Finnegan, The Facts About Fats, Celestial Arts, Berkeley, CA

This book will help you get you past the “scandal of ignorance, disinformation, and greed” we have inherited. This book will throw light on your road to optimum health by making it clear what’s wrong with conventional nutrition advice about fat, and what’s wrong with most of the fat you find in modern foods.
CHAPTER ONE

Smart Fat, Friendly Fat

“In twenty-four years of clinical holistic practice I have interviewed many thousands of people on their health and nutrition. The evidence for the need of pure, natural, unheated fats for optimum health is overwhelming.”

Leonard Mehlmauer, N.D., H.P., Holistic Practitioner, Camarillo, California, and author of Nourishment

Imagine a lady who has never heard of vitamin C. Therefore, she doesn’t know about its antioxidant activity, that it helps fight infections, that it prevents scurvy. She doesn’t know that her body can’t produce it, that vitamin C must come from her diet.

This lady who doesn’t know anything about vitamin C begins to gain weight. She doesn’t like it, wants to be slender again. Then she reads an article about the latest weight loss fad, The No Fruit, No Vegetable, Low Cal Weight Loss Diet. She doesn’t know it, of course, but this silly regimen systematically eliminates almost all the vitamin C from her diet.

We all know that she’ll suffer negative health consequences. But her problems will probably be exacerbated because she’ll lose a little weight due to calorie reduction, and therefore be encouraged to persist with her fundamentally unhealthy program. Does that sound absurd? It is, of course, but no more absurd than the current no-fat, low-fat diet fad.

“The present mania of low fat diets has led to bizarre, lopsided eating patterns that decrease fat to the detriment of the body’s EFA requirements.”

John Diamond, M.D. Biological Therapy, vol.13, no.1, 1995

“A diet low in fat, which is likely to be low in EFAs, may not lead to a reduced risk of coronary artery disease, but may actually increase the risk.”

Edward Siguel, M.D., Ph.D., Essential Fatty Acids in Health & Disease.
Fat --- Even More Important than Vitamins & Minerals

In terms of quantity, after water, protein, and carbohydrates, come essential fatty acids (EFAs)—needed in far greater quantity than any vitamin or mineral. As an indicator, consider the fact that the gray matter of your brain is 50% EFAs!

EFAs are like vitamin C in our fantasy about the lady who never heard of it: You need them and your body can’t make them. EFAs appear wherever intense biochemical activity occurs—your sense organs, sex organs, adrenal glands, nerve and brain cells.

- They are key materials in all cell membranes, nerve coverings, hormones, bile acids, prostaglandins (having anti-inflammatory and immune-enhancing functions).
- EFAs play vital roles in the transfer of oxygen to cells and the conversion of food to energy.
- EFAs are required for the transport and metabolism of cholesterol and triglycerides; they can reduce serum cholesterol by up to 25%, and triglycerides by up to 60%.
- EFAs increase energy, elevating metabolic efficiency by fostering more efficient fat burning. Increased energy is one of the most common reactions to EFA supplementation, particularly omega-3 EFA.
- EFAs encourage healthier skin, hair, nails, and quick healing.

There are two EFAs, known as omega-6 and omega-3. All of their functions are not known yet, but these are the ones we know the most about:

Omega-6 EFA:
- decreases cholesterol and triglycerides,
- lowers high blood pressure,
- enhances immune and skin function, and softens blood vessels.

The following conditions may benefit from taking Omega-6:
- acne
- allergies
- cardiovascular problems
- dehydration
- dry skin
- fatigue
- food sensitivity
- immune deficiencies
- liver problems
- mood swings
- osteoarthritis
- PMS
- weight management

Omega-3 EFA:
- decreases cholesterol and triglycerides,
- lowers high blood pressure,
- enhances metabolism and blood flow, and improves eye function.
The following conditions may benefit from taking omega-3:

- allergies
- cardiovascular problems
- cholesterol control
- circulatory problems
- eczema and psoriasis
- eyesight problems
- immune deficiencies
- learning difficulties
- nerve problems
- osteoarthritis
- rheumatoid arthritis

Just the short summary above should emphatically make the point: *EFAs are really essential!* As Edward Siguel, M.D., Ph.D., author of *Essential Fatty Acids in Health & Disease*, succinctly explains, “*Without essential fats, cells do not work well, organs die prematurely, brain function deteriorates.*”

**Friendly Fat---Cleanses, Fuels, Lubricates, & Protects**

So far I’ve only written about *essential* fatty acids--essential because your body can’t make them. They are only two of the eighteen fatty acids that comprise the food category we know as *fat*. What about the fat category considered comprehensively?

> “*Because fat cleanses, fuels, lubricates and protects the body, it is needed more than any other single nutrient—that is, more than sugar, starch, and protein. Fat is also a necessary catalyst for utilizing minerals and protein. That is why a diet resplendent in raw fat is so important to excellent health. Diets low in fat create increasing immune deficiencies.*”

Aajonus Vonderplanitz, *We Want to Live*, Carnelian Castle Press, Santa Monica, CA

Notice that Vonderplanitz, a professional nutrition counselor, uses the term “raw fat”. He defines it as fat that has not been heated above 104°F, pointing out that when fats are heated above that temperature “they are rarely digested, assimilated, or utilized properly.” A partial list of the raw fats Vonderplanitz recommends includes: unpasteurized cream, butter, kefir, and cheese; raw eggs; fresh coconut; avocados; and fresh vegetable oils.

Vonderplanitz underscores the theme of this book---you really do need to eat fat, your life really does depend on it. Your body has 100 trillion cells and every one of them needs fat---inside and out.

- Your cell walls, which control the flow of materials into and out of your cells, are made mainly of fat.
- The flexibility of your skin, muscles, and organs is due to fat.
- Fat provides fuel to generate energy *inside* your cells.
• Fat provides protective insulation outside of your cells.

Don’t Forget the Kids—Their Brains are 50% EFAs

From the points made just above, the key fact to remember in infant and child nutrition is that cells are made mainly of fat. Since the early years are an intense period of cell production (growth), it should be obvious that EFAs are critical for infants and children. Remember that the gray matter of their brains is 50% EFAs—they are necessary for your children to reach their true potential for intelligence. In fact, EFAs are even more essential for infants and children than they are for adults. Edward Siguel, M.D., Ph.D., shows that brain and behavior abnormalities result from feeding children low EFA diets.

The first source of EFAs in a human’s life should be in its mother’s milk. Mother’s milk is a far better source of EFAs and their derivatives than either cow’s milk or infant formulas if the mother is getting EFAs in her diet.

For mothers, infants, and children the best way to insure adequate EFA consumption is:

1) A balanced diet of whole, natural, organically grown foods

2) A balanced EFAs supplement (see Chapter 5)

The importance of organically grown foods lies in the fact that such foods generally come from soils rich in humus and trace minerals. This makes it probable that the crops actually have the full range of nutrients they should have. Foods grown on soils farmed with artificial fertilizers and toxic sprays frequently perform far below their nutritional potential. An experiment at Rutgers University with five vegetable crops dramatically illustrated this point: regarding calcium, for example, the non-organic vegetables had between half and one fifth as much as those grown organically.

Quantity Recommendations for EFAs

The best EFA supplements are fresh polyunsaturated vegetable oils. (Examples: fresh sunflower oil for omega-6; fresh flax oil for omega-3.) They can be taken off the spoon, or mixed into smoothies, dressings, sauces, spreads, and marinades. To preserve their nutritional value, do not heat them (see page 27).

The recommended quantity of EFA supplementation is 1 teaspoon per day for each 35 pounds of body weight:

- Up to 35 pounds ............ 1 teaspoon
- 36 - 69 pounds ............ 2 teaspoons
- 70 - 105 pounds ............ 1 tablespoon
- Ladies ...................... 1-2 tablespoons
- Men ......................... 2-4 tablespoons

Often, dramatic results can be obtained by doubling the above recommendations for the initial two week period of EFA supplementation, then cutting back to the above levels.
CHAPTER TWO

Distinguishing Good Fat From Bad

“From conception onward, throughout a person’s entire life, the body relies on fats for energy, insulation, lubrication, hormone formation, and immune function. We cannot underestimate the nutritional importance of fat and essential fatty acids in human nutrition.”

Harvey Eckhart, M.S., D.C., Santa Rosa Preventive Health Clinic, Santa Rosa, California

By the time you’ve read this whole book you’ll have a good grip on how much fat should be in your diet---quantity is the easily understood part of the dietary equation. The more complicated part is quality; it’s the topic of this chapter and weaves through most of the other chapters too. Before we address the quality issue, however, let’s look at what fats actually are.

The Fatty Acids

Imagine you are standing on a stepping stone in a tunnel. Ahead of you are a few more stones, behind you a few more.

The stepping stones are carbon atoms, and you are standing inside of a fatty acid molecule. (You’ve become incredibly tiny: there are trillions of fatty acid molecules in a single drop of oil.)

You feel a force field around you and look up. Spinning above you is a small ball, a hydrogen atom.

You peer over the edge of the stone you’re standing on. Another hydrogen atom is spinning below you.

Each of the stones in the chain is held in place a short distance from the other by a force field. And each of the stones has a hydrogen atom spinning above and below. The energy between the carbon and the hydrogen above and below form the rather ethereal “walls” of the tunnel.

You step from one stone to another until you come to the end of the chain. What would have been the next carbon stone is an extra hydrogen atom instead. You are at the tail of the chain, technically known as the acid group.

Turning around, you head for the other end of the chain. Arriving, you look left and right and see oxygen atoms. You are at the head of the chain, the “fuel tank” of the fatty acid molecule, known technically as the carboxyl group.

The Kinky World of the Triglycerides

Upon reaching the head of the chain, you realize this fatty acid molecule is linked to an altogether different kind of molecule. You look into it, left and right. This is a glycerol molecule.
Wandering through the glycerol molecule, you see that there are two other fatty acid molecules attached to it. In fact, the glycerol molecule is the backbone from which three fatty acids swing. Taken together, all four pieces form a triglyceride.

The fatty acid molecules on either side of the one you were in are different. The one you were in, the middle one, was perfectly straight and virtually motionless. But the ones on either side undulate.

You don’t venture down, but you can see that all the activity occurs at a couple of carbon stones where hydrogen atoms are missing, leaving gaps in the tunnel “wall”, creating kinks in the chain. These kinks cause all the movement in these tunnels.

If you were to spend enough time in the kinky world of triglycerides, you would come back armed with the following facts:

- Approximately 95% of the fats you eat are triglycerides.
- No kinks in a chain is a saturated fat
  1 kink is a monounsaturated fat
  2 kinks is a polyunsaturated fat
  3 or more kinks is a superpolyunsaturated fat.
- No kinks means a fat is “sticky”. Having little molecular activity, your body tends to use them as fuel. When incorporated into your cell walls, they provide rigidity.
- The more kinks, the more molecular activity, the more participation in your body’s biochemical and energetic processes. When molecularly active fats are incorporated into your cell walls, they provide fluidity.
- Effectively, kinks (vacancies in the chain) are like an invitation to oxygen to attach itself. When a fat is thus oxidized, it becomes rancid.
- The number of kinks in a fatty acid chain determines its stability. A saturated fat (no kinks) is stable (will not get rancid); whereas, at the opposite end of the spectrum, a superpolyunsaturated fat (three or more kinks) is highly unstable (will get rancid very easily).
- There are 18 different fatty acids, their carbon chains being from 4 to 22 in length.
- Meat, dairy, and tropical fat carry saturated and monounsaturated fat in all three triglyceride positions, and are solid at room temperature.
- The oils of olives, nuts, and sesame seeds have much more monounsaturated fat than either saturated or polyunsaturated, and solidify when refrigerated.
- Polyunsaturates dominate in the oils of grains, beans, and seeds; they remain fluid even when refrigerated.
• Superpolyunsaturated omega-3 essential fatty acid is so active that it remains fluid even in the
freezer. (Flax oil, which is 55% omega-3, becomes sludge-like, but not frozen, in your freezer.)

Fat consistency relative to temperature is important to your understanding of the differences between the
difficulties of the four categories of fats. Why won’t flax oil become completely solid in your freezer? Because the molecules
are so active (there are so many kinks in the chains) that the coldness can’t completely shut them down.

It is their high activity rate than demands EFA participation in such vital functions as your metabolic and
oxidation rates. Another virtue associated with the EFAs high activity rate is that they don’t tend to stack up
on the walls of your blood vessels—they aren’t “sticky”. In fact, since the double bonds create a slight
negative charge, EFAs tend to repel each other and spread out in your bloodstream.

Character- | Saturated | Monounsaturated | Polyunsaturated | Superpolyunsaturated
istics Fat Fat Fat Fat

| Consistency | Solid at room temp. | Solid in refrig. | Fluid in refrig. | Fluid in freezer
Kinks | 0 | 1 | 2 | 3 or more
Molecular Activity inactive slow fast very fast
Stability very stable stable unstable extremely unstable

Saturated Fat (Energy Fat)—Good & Bad

Contrary to common belief, not all saturated fat is bad. Saturated fat occurs as short, medium, and long
chain triglycerides. The short and medium chains do not turn into human fat, they are fuel, burned as energy.
Coconut oil, for example, is a fat that is widely thought to be “bad” because it is mostly saturated. But most
of it is medium chain triglycerides, making it good body fuel. Animal fat, on the other hand, is primarily long
chain triglycerides—bad in excess, particularly when wrong food choices lead to excess cholesterol and
increased fat stores in your body.

Hydrogenated or partially hydrogenated vegetable oil is always bad. Hydrogenation is a process that
artificially hardens vegetable oils. A hydrogenated oil molecule examined under a microscope resembles a
plastic molecule and is the origin of the term “plastic foods”. Just as health conscious people don’t eat
plastic, neither should they eat hydrogenated or partially hydrogenated fat.

Food manufacturers usually try to deceive us regarding this form of saturated fat: Since it originates as
vegetable oil, they use terms such as “vegetable shortening” and “no cholesterol”, as if those terms imply
something healthy or benign. Future generations will probably cite hydrogenation as the single worst form of
20th century food processing. Hydrogenated and partially hydrogenated vegetable oils abound in snack
foods, baked goods, and are the main ingredient of margarine. Unfortunately for everyone but the
processors, these artificially saturated, or “hardened” vegetable oils are implicated in the worst forms of
degenerated health—cardiovascular disease and cancer.
Monounsaturated Fat (Neutral Fats)

In the opinion of fats and oils expert Dr. Edward Siguel, the highly touted health effects of the Mediterranean Diet are not due to the high monounsaturated content of olive oil, but that the Mediterranean people responsible for the good statistics also eat foods high in EFAs. Monounsaturates are not EFAs; you should consider monos neutral as long as they’re not in excess. Excessive monounsaturates are stored in the body as saturated fat. The body converts saturated fat back to monos as needed, but not into EFAs.

Polyunsaturated Fat (Structural Fats)—Good and Bad (Really Bad)

Both of the EFAs are polyunsaturates (actually, superpolyunsaturates). Logically, then, you would think that polyunsaturates are the good fats. And they are... if their molecular structures are not distorted.

Distorted polyunsaturated fats are called isomers. An example of an isomer is trans fatty acids (TFAs). TFAs and other isomers are polyunsaturate oil molecules whose shapes have been altered by heat and pressure. In their transformed shapes they look like saturated fat, or else have a bizarre appearance your body can’t even recognize.

“High levels of TFAs are associated with coronary heart disease and abnormal cholesterol levels... I also suspect that future research will show that many isomer fatty acids are indicators of infectious disease.”

Edward Siguel, Essential Fatty Acids in Health & Disease

This drawing of a cell membrane clearly implies the importance of structure; in other words, why you should avoid isomers.

You can see that fats and oils (lipids) are like bricks in the construction of your cell walls. If the bricks are faulty, the wall is weakened—the membrane springs leaks.
Things that would have been kept out of your cells begin passing in, and vice versa. This is illustrated here by the drawing of a cell wall distorted by the presence of a trans fatty acid.

The cis form in the drawing is normal. The trans form is an aberration, typically caused by:

- high cooking temperatures
- the even higher temperatures of refining
- and by hydrogenation

If your body is forced to use distorted fats, your immune system, your nervous system, your organs, and even your brain don’t function as well as they should. You might suffer from lack of energy, skin and hair problems, be prone to infections, even show malfunctions of organs like the kidneys and heart.

“Trans fatty acids are probably the most unhealthy substance eaten in quantity by modern people—and modern people do eat them in quite a quantity. Margarine is a major source... From cookies to bread, trans fatty acids appear as either a hydrogenated or partially hydrogenated oil.

“Medical studies consistently show that trans fatty acids are associated with damage to our arteries and higher rates of death. In Europe, studies also show that they’re responsible for reproductive irregularities, such as low birth-weight babies, abnormal sperm, and reduced testosterone levels.”

Mary Enig, Ph.D., renowned researcher of fats and oils, writing in Well Being Journal, May/June 1995

To add further insult to injury, TFAs may even encourage you to get fatter. Writing in The Omega Diet, Artemis Simopoulos, M.D., and the president of the Center for Genetics, Nutrition, and Health in Washington, D.C., points out that TFAs in animal experiments have increased the size of fat cells.

It might seem logical that since TFAs look like saturated fat, they must act like saturated fat in your body. Indeed, that is the contention of some so-called “experts”. But it isn’t so. Enig asserts that “the biological effects of saturated fatty acids in the diet versus the biological effects of trans fatty acids is in actuality a listing of the good (saturated) versus the [bad].”

While the common belief is that polyunsaturated vegetable oils are a key to good health—particularly heart health—Enig strongly disagrees:
**Saturated Fat vs. Trans Fatty Acids**

<table>
<thead>
<tr>
<th><strong>Saturated Fats (Good)</strong></th>
<th><strong>Trans Fatty Acids (Bad)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Are a normal fat made by the body</td>
<td>Are abnormal, not made by the body</td>
</tr>
<tr>
<td>Raise HDL (good) cholesterol</td>
<td>Lower HDL cholesterol</td>
</tr>
<tr>
<td>Lower Lp(a), a lipoprotein Harmful to arteries</td>
<td>Raise Lp(a)</td>
</tr>
<tr>
<td>Conserve omega-3</td>
<td>Cause loss of omega-3</td>
</tr>
<tr>
<td>Do not inhibit insulin binding</td>
<td>Inhibit insulin binding</td>
</tr>
<tr>
<td>Do not interfere with enzymes that trigger prostaglandin production</td>
<td>Interfere with enzymes that trigger prostaglandin production</td>
</tr>
<tr>
<td>Are used by the body to fight viruses, bacteria, and protozoa</td>
<td>Interfere with immune function</td>
</tr>
<tr>
<td>Stearic acid is the body’s preferred heart food</td>
<td>Replace stearic acid in cell membranes, thus depriving the heart</td>
</tr>
<tr>
<td>Provide proper modeling of calcium in the bones</td>
<td>Cause softening of the bones</td>
</tr>
<tr>
<td>Carry vital fat-soluble vitamins in the blood</td>
<td>Do not carry vitamins</td>
</tr>
</tbody>
</table>

“Excess polyunsaturates have been shown to contribute to heart disease, cancer, weight gain, and many other health problems. Excess oleic acid can contribute to prostaglandin imbalance and weight gain, while canola oil causes vitamin E deficiency and other problems.”

**Fat Facts: Trans Fats and Saturated Fats Are Not the Same**
Notice that the first word in the above quote is “excess”. It is not a matter of replacing all polyunsaturated and monounsaturated vegetable oils with saturated fats. It is a matter of not being excessive, obsessed with polyunsaturates to the exclusion of other kinds of fats. And it is also definitely a matter of excluding distorted polyunsaturates, particularly in the form of trans fatty acids.

**The Subtle Forces That Create Bad Fat**

Heat and pressure are the gross forces that distort oil molecules.

They are also impacted by comparatively subtle forces—light and air.

**Light** causes a process called photon decay in which electrons spin off, forming free radicals. Free radicals can damage body cells and many scientists believe they are the major cause of aging.

**Air** alters polyunsaturated oil molecules via oxidation, which causes rancidity. Besides the acrid, unpleasant odor and taste of rancid oil, it is also a source of free radicals.

Although rancidity is more familiar and therefore has a worse reputation, photon decay is far more common and therefore a much worse problem. Recall almost all of the vegetable oil you’ve seen on store shelves: they’ve been contained in clear glass bottles, right? The light is pouring in moment by moment, photon decay is in progress, and the quality of those oils is heading towards zero.

**You Have Been Ripped Off**

“[Your] body’s capacity to break down altered fatty acids is limited . . . When [your] intake exceeds [your] limit, disease begins to manifest, because [your] body attempts to use altered molecules for vital structures and functions.”

Udo Erasmus, *Fats That Heal, Fats That Kill*, Alive Books; Burnaby, BC

Much of the fat that could be good is really not, due to the impact of pressure, heat, light, and air. These forces have their influence either during processing, or in the bottle, or both. Unfortunately for almost everyone concerned, almost nobody knows this story, and that’s what I mean when I say you have been ripped off. For further emphasis I’ll repeat what John Finnegan wrote in *The Facts About Fats*:

“The fats and oils story may well be the greatest scandal of ignorance, disinformation, and greed in the entire history of food production. The effects of poorly processed oils are a major causative factor in heart disease, cancer, and most modern diseases that have affected hundreds of millions of people all over the world.”

In an article Finnegan wrote for the magazine Health Naturally (Aug./Sept. ’94), he offered the following guidance to readers for recognizing good quality vegetable oils:
The unavoidable and stark conclusion of all you’ve read in this chapter can be very sobering for health-conscious people. There are many “healthy” food products in the marketplace that, in fact, contain unhealthy fat. Do the makers of those foods know what you know now and will learn from the rest of this book? I have no way of knowing, but you can leave them behind until they catch up to you.

**How to Improve the Quality of the Fat You Get From Food**

<table>
<thead>
<tr>
<th>Eliminate, or at least Drastically Reduce</th>
<th>Increase or Substitute</th>
</tr>
</thead>
<tbody>
<tr>
<td>margarine, shortening, butter</td>
<td>FRESH vegetable oils</td>
</tr>
<tr>
<td>made from pasteurized cream</td>
<td></td>
</tr>
<tr>
<td>dairy products made from</td>
<td>dairy products made from</td>
</tr>
<tr>
<td>pasteurized milk</td>
<td>certified raw milk</td>
</tr>
<tr>
<td>salad dressings</td>
<td>homemade dressings made</td>
</tr>
<tr>
<td></td>
<td>with fresh vegetable oils</td>
</tr>
<tr>
<td>fried foods</td>
<td>raw foods</td>
</tr>
<tr>
<td>beef, pork, prepared meats</td>
<td>sea food, including sea vegetables</td>
</tr>
<tr>
<td>chips</td>
<td>nuts, seeds</td>
</tr>
<tr>
<td>fast foods</td>
<td>salads</td>
</tr>
<tr>
<td>frozen entrees</td>
<td>whole grains, beans, fresh vegetables</td>
</tr>
<tr>
<td>pastry</td>
<td>fresh fruit</td>
</tr>
</tbody>
</table>
CHAPTER THREE

What Happens to Fat in Your Body—Why Your Life Depends On It

The Ten Stage Interaction Between You and Fat

1) Fat enters your body as triglycerides (95%) and phosphatides (5%).

2) Stomach enzymes and bile (small intestine) break fats down into free fatty acids, glycerol, and phosphate.

3) Absorption through your intestinal walls occurs next.

4) Reassembly into triglycerides (95%) and phosphatides (5%) in your intestinal walls is next.

5) Triglycerides and phosphatides enter your lymph system, carried by chilomicrons.

6) Your lymph system transfers chilomicrons to your bloodstream at the subclavian vein, near your heart.

7) In your bloodstream, fat is transferred from chilomicrons to high-density lipoproteins.

8) High-density lipoproteins take triglycerides and phosphatides to your liver.

9) Your liver sends fat to your cells in low-density lipoprotein (LDL) carriers.

10) Non-essential fats are used as:
    - fuel
    - fuel storage
    - insulation
    - carriers for fat-soluble vitamins A, D, E, & K
    - calcium absorbing element
    - part of your immune system
    - raising HDL cholesterol

Your cells use EFAs in two ways:

- Structurally (membranes), and
- metabolically (see the Metabolic Pathways charts on pages 23-24)
(1) Cell membranes are semipermeable because proteins have receptor areas. Nutrients pass through them, enzymes are secreted, electrical (nerve) impulses are passed, immune responses are generated. Since the proteins are surrounded by semifluid fat, they move around within the membrane structure.

(2) If your diet is high in EFAs, cholesterol provides most of the separation between highly active EFAs, preventing them from cross-linking, which would make the cell wall too rigid. If the diet is high in saturated fats, they replace cholesterol, which then goes to the bloodstream. (Does this make you wonder what’s wrong with cholesterol? The answer is nothing, but more about that later.)

Phosphatides are structured like triglycerides, except that one saturated or monounsaturated fatty acid is replaced by phosphate. Phosphate is water soluble, therefore phosphatides in the cell membrane make the cells compatible with the watery environment of the bloodstream.

**The Metabolic Pathways of Essential Fatty Acids (EFAs)**

The EFAs that are not used structurally in your cell membranes become oxygenated and acted upon by enzymes through a complex series of changes, most of them ending in a class of fatty substances called eicosanoids. Eicosanoids (eye-co-san-oids) are hormone-like cell-to-cell regulators. More than 100 of them have been identified and the list is steadily getting longer. These “bio-active lipids”, as they are sometimes called, break down into subcategories, the most important of which are prostaglandins, thromboxanes, and leukotrienes, all of which live for only a matter of seconds. The Metabolic Pathways charts that follow identify the stages of the process.
Metabolic Pathways of
OMEGA-3 EFA
ALPHA-LINOLEIC ACID (LNA)

(LNA)
ALPHA-LINOLEIC ACID

ENZYMES

EPA
EICOSAPENTAENOIC ACID

EICOSANOIDS

DHA
DOCOSAHEXAENOIC ACID
THE EICOSANOIDS CASCADE: PROSTAGLANDINS, THROMBOXANES, LEUKOTRIENES

DGLA
SERIES 1 PROSTAGLANDINS

AA
SERIES 2 PROSTAGLANDINS
THROMBOXANES
LEUKOTRIENES

EPA
SERIES 3 PROSTAGLANDINS

THE FUNCTIONS OF EICOSANOIDS

PROSTAGLANDINS
- Immune regulation
- Inflammation mediation
- Temperature regulation
- Blood vessel dilation
- Mucous membrane protection
- Bone metabolism
- Tissue stimulation
- Blood platelet function

THROMBOXANES
- Blood platelet function
- Blood vessel constriction

LEUKOTRIENES
- Inflammation mediation
- Immune regulation
- Muscle contraction
- Mucus secretion
Symptoms of Prostaglandin Deficiency

The main enzyme responsible for breaking down omega-3 and omega-6 is *Delta-6-Desaturase*, or *D6D*. It is estimated that as many as 10% of the population is deficient in D6D. Inevitably, then, those people will be deficient in prostaglandins. Major symptoms of prostaglandin deficiency are:

- Dry, rough skin
- Abnormal nails
- Heart disease
- Obesity
- Rheumatoid arthritis
- Multiple sclerosis
- Cancer
- Schizophrenia

The Causes of Prostaglandin Deficiency

D6D deficiency is primarily due to an unhealthy diet and distorted fats. The unnatural shape of trans fatty acids, found in oils that are hydrogenated, processed at high temperatures, or have undergone photon decay via exposure to light is a major factor. Other factors are:

- Vitamin deficiency
- Mineral deficiency
- Excess alcohol
- Excess caffeine
- High omega-6, low omega-3

In most cases, once good nutrition is established and distorted fats are eliminated, effective EFA conversion is restored.
CHAPTER FOUR

FRESH Vegetable Oil—The Best Fat of All

“Any food intended to nourish a living organism requires the utmost care and conscious handling during preparation and storage. The advanced technology for producing fresh vegetable oils honors this very important principle.”

Andrew Dorfman, M.D., Family Practice & Medical Acupuncture, Middletown, California.

A Blueprint for Making FRESH Vegetable Oils

In the lefthand column of the chart on page 31, the points are a blueprint for making the kind of vegetable oils we should all be using. They are also the parameters of a new technology, a method for making fresh vegetable oils that actually stay fresh for many months. Let’s look at the five points of this new technology a little more closely.

Processed below 118°F
Above this temperature all enzymes have been destroyed. The presence of enzymes is a standard by which freshness (or lifeforce, or energy) can be measured. From this perspective, the lower the processing temperature, the better. The process of enzyme destruction is already underway at 104°. Omega Nutrition, the premier producer of fresh vegetable oils, extracts oils in a temperature range of 86-92°F.

In conventional oil extraction, huge expeller presses crush oil seeds at temperatures that often exceed 200°F. However, it is possible to expel oil at much lower temperatures by using small presses that can be adjusted with a precision impossible for the large-scale expeller presses. The processing described in the next paragraph incorporates such small expeller presses.

Processed excluding light and air
Conventional oil pressing does not, and could not, exclude light and air. But the fresh-pressed technology introduced to North America by Omega Nutrition is both air and light-free. The general term for fresh-pressing is modified atmosphere pressing (MAP). (Omega Nutrition’s version of MAP is called omegaflo®.) MAP is accomplished by a combination of light shields and inert gas that replaces the air that would otherwise surround the pressing.

Processed without toxic solvents
Solvents aren’t necessary to extract most of the commonly used vegetable oils. The use of solvents arises from the motivation to extract every last drop of oil. This, of course, makes for cheaper oil. But it also requires tremendous heat to drive off the solvent—as much as 425°—and the solvent residues that remain are certainly toxic and probably carcinogenic.

Bottled in opaque plastic containers
Once the photon decay described on page 19 is widely understood, there will be a tremendous consumer demand to change oil packaging from clear to opaque containers. Even oil that starts out at a higher level of
quality will steadily deteriorate as the light rays stream in. Each light ray (photon) can trigger a chain reaction of free radical formation that recurs thousands of times before it stops. Erasmus reckons that photon decay is 1,000 times more destructive than oxidation (rancidity).

An excellent choice for opaque packaging of vegetable oils is high density polyethylene (HDP). Proven stable in the presence of oil, it can be made completely impervious to light.

Another excellent choice is brown glass bottles inside cardboard boxes. This combination accomplishes the same opaqueness as HDP as long as the bottle is returned to the box right after usage.

Though opaque, metal containers are not appropriate, since metals can be a catalyst for oil breakdown.

**Air displaced by inert gas**

It would be useless to exclude air from processing without also excluding it from the bottle. This is done by flushing out the bottle with an inert gas such as nitrogen. Filling with oil then displaces the gas, except for the small amount that fills the “air space” at the top.

Each of the five points named by Finnegan as a requirement for good fat is a feature of modified atmosphere pressing and packaging (MAPP, the second P standing for “packaging”). Fresh flax oil and fresh culinary oils—safflower, soy, sesame, etc.—are also MAPP and sold in health and natural foods stores and/or sold to you directly by the manufacturers (see Chapter 7, page 47).

There is so little impact on the oil molecules by MAPP that it is almost like reaching into the raw seed or nut to get your oil. MAPP oils are fresh in terms of flavor, aroma, color, and nutritional value—“fresh” as in *full of life*.

Fresh oils are as different from the ordinary expeller pressed oils found in health and natural foods stores as whole wheat flour is from white. Like whole wheat flour, fresh oils are sure to become the standard for health conscious consumers as the facts displace misinformation and disinformation.
VEGETABLE OIL QUALITY PYRAMID

THE BEST & HEALTHIEST QUALITY VEGETABLE OIL

FRESH VEGETABLE OILS
- Certified Organic Oils
- Extra Virgin Olive Oil
- Unrefined Expeller Pressed Oils
- Expeller Pressed Refined Oils

“The only vegetable oils health conscious people should use.”

Elizabeth Huntley
Ph.D. Nutritionist

MID-RANGE QUALITY

FRESH VEGETABLE OILS
- Certified Organic Oils
- Extra Virgin Olive Oil
- Unrefined Expeller Pressed Oils
- Expeller Pressed Refined Oils

Until recently, the best available to quality conscious shoppers

LOW QUALITY

SOLVENT EXTRACTED OILS
- Certified Organic Oils
- Extra Virgin Olive Oil
- Unrefined Expeller Pressed Oils
- Expeller Pressed Refined Oils

MASS MARKET BRANDS
We are really talking about a bigger difference than the whole wheat/white flour metaphor: actually, it is more like the difference between white flour and freshly ground whole wheat flour. (In the 60s and early 70s, I had natural foods stores in which we had stone mills, grinding whole grain flours daily. Once people tried fresh flour, their baking was so flavorful and lively, they never wanted to return to the stuff in bags that was who-knew-how-old.)

The New FRESH Technology vs. the Old Technology: The Revelation of REAL Quality

Before the advent of fresh-pressed technology, there were two broad classes of oil: solvent extracted (the commercial brands found in the mass market) and expeller pressed (the alternative brands found in health and natural foods stores).

Mass market bottlers and bottlers for the natural foods trade buy their vegetable oils from the same large-scale processors. The difference is that the natural foods bottlers specify that their oils be diverted from the solvent extraction stage that normally follows the expeller press stage (the solvent is used to extract the 6% or so that the expeller presses don’t get). Otherwise, processing of refined oils for mass market and natural foods brands is the same.

The natural foods bottlers buy a tanker at a time and bottle the expeller pressed oils under their brand names for health and natural foods stores, sometimes describing them as “cold pressed”.

The expeller presses used for these oils are big—the way a locomotive is big. They create tremendous pressure, which in turn produces great heat, typically 162-183°F. Thus, expeller pressed oils are cooked. And then cooked again: Both solvent extracted and refined expeller pressed oils go through a deodorization process in which the temperature can reach 500°F.

Trading Quantity for Quality

The fresh vegetable oil technology uses small, imported expeller presses—so small you can almost get your arms around them. They are precision machines that can be fine-tuned for more or less pressure, thereby controlling the heat generated.

Backing off the pressure leaves more oil in the seeds, so the tradeoff is quantity for quality. The best quality fresh oil is extracted below your body temperature. This is truly cold pressed, but since that term has been compromised over many years by association with ordinary expeller pressed oils, most bottlers of fresh oils avoid the term.

The exclusion of light and air favors the term modified atmosphere pressing, with the heat factor simply identified with a statement on the label like “pressed between 86-92°F.

The low temperatures of modified atmosphere pressing preserves enzymes and other heat-sensitive nutrients. It also prevents the formation of isomers such as trans fatty acids that occur because of the heat and pressure of conventional oil processing.
OIL PRESSING AT A GLANCE

SOLVENT EXTRACTED AND EXPELLER PRESSSED OILS

Oil seeds, usually not organically grown.

Dirt & Dust

Husks, Etc.

Preheating 110°F - 180°F
45°C - 85°C

MASS MARKET BRANDS:
Solvent Extraction

Pulp with oil

Hexane Solvent

Centrifugal Filtration
Phosphate

Distillation

Caustic Soda

Refining Neutralizing (degumming)

Washing

Diatomaceous earth 2-3% added as bleaching agent

Filter Press Bleaching

Deodorizing 450°F - 520°F
230°C - 245°C

Steam Injection

REFINED OILS

EXPPELLER PRESSSED: “Natural Brands”

SOLVENT EXTRACTED: “Mass Market Brands”

LITTLE NUTRITIONAL VALUE. Nutrients either altered or removed. Contains toxic trans fatty acids, free radicals, and other toxic substances.

FRESH OILS

Oil seeds, usually organically grown.

Seed cleaning, hulling process

Dirt & dust removed

Husks, etc.

Small batch cold pressing system - oxygen & light free environment (the omegaflo® fresh pressed process is an example)

Settling but no filtering or other processing.

FRESH OILS

With all nutrients intact.
NO toxic substances!
Modified atmosphere pressing is also called “low impact” pressing. This refers to the fact that there is so little impact on the molecules that their structure is virtually unchanged by the processing. It’s uncooked, unoxidized, virgin, fresh. Fresh vegetable oil is full of flavor and aroma, in vivid contrast to the bland vegetable oils that the vegetable oil industry wants us to consider “normal”.

To understand the import of the technology for making fresh vegetable oils, let’s use a flour analogy again. It’s as if the mass market were selling unbleached and bromated white flour, the health and natural foods stores was selling bleached white flour, and suddenly whole wheat flour, based on a new production technology, became available:

   This equates with          this
   bleached, bromated white flour . . . solvent extracted oil
   unbleached white flour . . . . . expeller pressed oil
   whole wheat flour . . . . . . . . . . fresh vegetable oil

Just as the difference between white and whole wheat flour is in how they are processed, so it is with ordinary oil compared to fresh.

**Surpassing “Old Fashioned Quality”**

“Old fashioned quality” generally refers to a level of excellence that just can’t be found in today’s world. Occasionally, however, a modern product comes along that surpasses the best from the past.

An example of superb quality vegetable oil from the past is the fresh oils made by German “oil beaters” before the Industrial Revolution. They would pour flax or other seeds into a funnel, place an iron wedge over the seeds, then slam the wedge repeatedly with a sledgehammer, driving the oil out of the seeds. The oil from the crushed seeds would be drained into a barrel, then the oil beater would load the barrel onto his wagon and sell fresh oil door to door.

Let’s see how the oil beaters’ “old fashioned quality” compares to the modern modified atmosphere process used to produce fresh vegetable oils:

1) Safe raw materials
In the days of the oil beaters, there were no hazardous agricultural chemicals. When vegetable oils are made from certified organic seeds, nuts, and beans, you can call this one even.

2) Low temperature processing
The oil beaters couldn’t have generated high temperatures if they had wanted to. The temperature range generated in today’s fresh vegetable oils is similar. Call this one even too.

3) Unrefined
Oils from the oil beaters were not processed at all. Fresh vegetable oils are also completely natural—unrefined and unfiltered. This one’s even too.
4) Freshness
The oil beaters delivered oil that was no more than a few days old. And here’s where modern technology surpasses that old fashioned quality. In a modified atmosphere process, light and air are eliminated throughout pressing and packaging. Combined with the very low pressing temperatures, the result is oils that are virtually unchanged from their state inside the seeds, nuts, or beans. There was no way the oil beaters could have matched us here -- we’re even fresher. *Modern fresh technology wins this point.*

5) Packaging
The oil beater delivered oil by ladling from a barrel on his wagon into the crocks of the housewives that responded to the bell he rang as he ambled through town. The oil was fairly well protected from light, but not from air at all. Fresh vegetable oil is protected from both light and air, from the press to the bottle to the store shelf. *Modern fresh technology wins this point too.*

Score: *two - zip* in favor of modern fresh technology.

Your local health or natural foods store can get fresh vegetable oils direct from the producers. The bottle you open is literally fresh from the press. You don’t have to be convinced by what you read here. When you try fresh vegetable oil, you’ll experience flavor, aroma, and nutrition surpassing “old fashioned quality.” Just as canned orange juice is flat compared to fresh juice, bland vegetable oils in clear glass bottles are insipid compared to fresh oils.

**The Cost Factor**

Fresh oils cost more than ordinary vegetable oils. Here are the reasons:

1) Usually fresh oils are made from certified organically grown seed stock, which costs more than conventionally grown seeds.

2) Fresh oils are made on a small scale, using exacting procedures that prevent the formation of free radicals, trans fatty acids, and other kinds of distorted molecules.

3) In order to keep pressing temperatures down, pressure is reduced, which means all the oil is not extracted—**quality** is emphasized, not quantity.

Maybe there are cases where cutting costs doesn’t cut quality; but vegetable oil production is definitely not such a case.

Calculating with average usage numbers, fresh oils compared to expeller pressed oils will cost about $30 more per person per year—a small investment for a great reward.
## FRESH Advantages Summarized

<table>
<thead>
<tr>
<th>Perceived Benefit</th>
<th>Solvent Extracted Oils</th>
<th>Expeller Pressed Oils</th>
<th>FRESH Oils</th>
</tr>
</thead>
<tbody>
<tr>
<td>From certified organic seed?</td>
<td>No</td>
<td>Rarely</td>
<td>Usually</td>
</tr>
<tr>
<td>Protected from light and air?</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Truly pressed at low temperatures?</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Enzymes &amp; other fragile nutrients intact?</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Free of trans fatty acids &amp; free radicals?</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Flavorful &amp; aromatic?</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>
CHAPTER FIVE

Towards a Balanced Approach

“The balanced EFAs program recommended here should become the standard for supplementing your diet with essential fatty acids.”

Alejandro Reyes, N.D., Ph.D., Nutritionist, Davie, Florida.

EFA Supplementation

Getting your fats straight comes in two parts:

1) EFA supplementation

2) Diet in general

We’ll look at dietary guidelines in the second part of this chapter.

For EFA supplementation, the experts’ consensus is 1-3 tablespoons per day of oil rich in both omega-6 and omega-3 EFAs. The amount depends on factors like gender (males more, females less) and metabolic type (slow oxidizers less, fast oxidizers more).

Just as important as the amount, is the matter of the balance between your omega-6 and omega-3 EFAs. As Philip Miller, M.D., a specialist in nutrition and longevity practicing in Carmel, California, points out, “The proper balance between omega-3 and omega-6 EFAs is critical for a healthy immune system.”

But what is the proper balance? There are two factors to consider, captured in the following quote:

“Food processing practices in the last 100 years have caused the dietary ratio of omega-3 fatty acids to omega-6 to become seriously out of balance. While omega-6 has remained relatively unchanged, omega-3 intake has decreased by nearly 80%.”


In other words,

1) Almost everybody in 20th century America has suffered a lifelong shortage of omega-3 EFA.

2) There is an optimum ratio of omega-6 to omega-3, but it is not the 20-25 to 1 ratio that is typical of modern U.S. diets.

The most effective way for most people to solve the EFA problem is to undertake an EFA supplement program in 2 phases, the first addressing the point 1 above—the commonplace shortage—and the second addressing point 2 above—EFA balance.
Phase One: Building Your EFAs

This phase is accomplished wholly or largely with fresh flax oil or flax oil spinoffs. Flax oil is by far nature’s richest source of omega-3 in its precursor form, alpha-linolenic acid (LNA). Normally, your body stores the LNA that isn’t needed immediately, then later breaks it down into derivatives as required.

After flax oil, fish oil is the next most potent source of omega-3 (roughly half). But the omega-3 in fish oil is already in the form of derivatives (EPA, DHA) that your body doesn’t store and use structurally in your cell walls, which is why fish oil is not the choice for the building phase. (Also, fish oils are not MAPP and are often rancid.) Normally, it takes between 3 and 6 months of flax oil products to overcome your deficiency of omega-3 and then build your reserve supply.

Once your reserves are built up, the high omega-3 content of Phase 1 products will circulate in the blood, tending to make it too thin. This can lead to skin problems, inflammation, and weakened immunity. Thus, EFA supplements that are ideal for the build-up phase can become counter-productive after approximately 6 months.

But fresh flax oil is a wonderful short-term supplement, benefitting just about anybody who takes it. Researchers estimate that the average American diet supplies only 1/6 of the required omega-3. Omega-3 helps normalize cholesterol, relieve arthritis, and is being used clinically, particularly in Germany, to reverse cancer. In circumstances where fresh flax oil is being used therapeutically, excess omega-3 is of no concern. For therapeutic purposes, the high level of omega-3 is necessary, not excessive. I have seen it trigger substantial weight loss, increased energy, and clear up cases of chronic skin problems such as psoriasis.

Fresh flax oil can vary in flavor from one batch to another. This is because the seeds themselves vary from farm to farm, even from one field to another on the same farm. For example, seeds that have matured with scant water tend to produce oil with a slightly bitter aftertaste. But such oil can have even more omega-3 than normal. (Rancid flax oil is unmistakable, smelling like spoiled fish.) Fresh flax oil is at least 55% omega-3, with an EFA ratio of 1 omega-6 to 3.5 omega-3 (simply expressed as 1:3.5).

The only way for a producer to make flax oil that’s consistently mellow, or bland, is to freeze it before bottling. This process is called winterizing. Bitter flavor bodies, when frozen, can be mechanically removed from the oil, which remains liquid because omega-3 is such an active molecule. While freezing mellows flavor, it has the disadvantage of devitalizing the oil. How can you tell if your flax oil has been winterized? It’s a definite possibility if every bottle has the same smooth, bland flavor.

Flax Oil Spinoffs

A spinoff of regular flax oil is high-lignan flax oil, often called “the good tasting flax oil”. It is made by adding flax meal to regular flax oil, which gives it a fuller, nutty flavor.

Flax meal is also the source of lignans, having over 100 times as much lignan content as its nearest rival, wheat bran. Research at the University of Toronto has established that lignans have antibacterial, antifungal, antiviral, and anticancer effects. When lignans mix with the beneficial bacteria in the colon, potent antioxidant compounds are formed. These hormone-like substances appear to balance hormones such as estrogen.
Another spinoff, made by at least two companies, is a blend of five parts fresh flax oil to one part fresh borage oil. Borage is nature’s richest source of GLA—at 24%, twice as potent as evening primrose oil. GLA is normally derived by your body from omega-6 EFA. A further conversion produces prostaglandins, hormone-like regulatory substances.

But poor quality dietary fats, aging, stress, illness, and alcoholism can interfere with the conversion process. Blends of flax and borage oils have been formulated for people in such circumstances. GLA has also been shown to benefit PMS, arthritis, and a variety of skin problems.

Both of these spinoff products were originated by Omega Nutrition and have been tested clinically for over ten years. Whether you conduct Phase One with flax oil or one of its spinoffs, after 3-6 months you probably will have saturated your body with enough omega-3 EFA to move on to Phase Two.

**Phase Two: Balancing Your EFAs**

The objective in this phase is to provide yourself with the optimum ratio between omega-6 and omega-3 EFAs. This phase is ongoing, perhaps even life-long. In researching the matter, I encountered experts supporting ratios between 1:1 and 10:1. For example, *Essential Fatty Acids in Health & Disease* (Edward Sigel, M.D., Ph.D., Nutrek Press, Brookline, MA) mentions the following ratios: 2:1, 3:1, 4:1, and 10:1 (in stating EFA ratios, omega-6 is always the first number).

The reasons for the variations in ratios are:

1) people’s metabolisms differ from one another, and

2) each person’s needs vary from time to time.

It’s logical to conclude, therefore, that there is no “perfect” EFA ratio, and that the logical goal is an optimum ratio. The ratio in your body’s tissues is 4:1, except in the brain and sex glands, where it is 1:1. Optimum, then, might be 4:1 or 1:1 or somewhere in between.

Since I can’t give you a cut-and-dried recommendation, here are some factors for you to consider:

- Some anthropological researchers have estimated that prehistoric man got his EFAs in a 1:1 ratio—the caveman ratio, a subset of “the caveman diet” you may be familiar with. Advocates of this ratio maintain that the advent of agriculture, which is only 10,000 years old, pushed the EFA ratio to 3, 4, or even higher, but did nothing to change the biochemistry and physiology of our species, which is millions of years old.

- Trainers working with endurance athletes and power lifters have reported improvements in both power and endurance using a 1:1 EFA supplement. These athletes burn roughly 8,000 calories per day, whereas the average man burns 2,700 and the average woman 2,000. If you’re super-active, a 1:1 EFA supplement would probably serve you well. There is at least one product in the marketplace that has been blended to give you a 1:1 EFA ratio. It’s made by Omega Nutrition, called *Essential Balance*. 
Besides activity level, there are many other variables involved. In general, a slow metabolism calls for more omega-3 than a fast metabolism. Living in a cold climate calls for more omega-3 than a warm climate. As our knowledge advances, we will probably discover other factors—genetics, for example—that determine what EFA ratio is best for you.

A single oil that has an excellent EFA ratio is hemp oil, with a 3:1 ratio. There is, however, a problem with most hemp oils in the marketplace. For hemp seeds to be imported into North America, they must first be fumigated, then sterilized with steam. This literally cooks the seeds, guaranteeing they will not be used to grow hemp as an intoxicant (which it wouldn’t be anyway, because unlike its relative marijuana, hemp has negligible amounts of THC). Of course, this also means that all domestically made hemp oil is cooked. To get uncooked hemp oil—that is, with a minimum of distorted molecules—look for imports that have been pressed at low temperatures. (Warning: nearly impossible to find.)

EFA ratios shouldn’t become a matter of controversy, with people standing hard by one ratio or another, as if it were liberals versus conservatives. To know what EFA ratio is best for you, try alternatives and listen to the messages your body sends. Here are a couple of reasons for not taking a rigid position regarding the best EFA ratio:

1) Most of the fat you eat comes in the form of *triglycerides*—three fatty acid molecules attached to a glycerol molecule. Your bile salts and enzymes split the fatty acids off from the glycerol, then all are absorbed through your intestinal walls. In your intestinal walls, the fatty acids and glycerol are reassembled for distribution according to your body’s needs. Some of these raw materials enter your lymph system as new triglycerides, Some enter your capillaries as free fatty acids and monoglycerides. In other words, you can eat one ratio of EFAs, but your body may put an entirely different ratio into circulation.
2) Your body has different needs at different times; therefore: It’s impossible to always be right about the ratio of EFAs you consume. The primary point is to give your body an adequate supply of high quality raw materials in a balanced range.

**Conclusion:** Consuming a variety of oils—each being different regarding EFA content—and taking a good EFA supplement will insure an adequate supply of EFAs for most people most of the time. What is a “good EFA supplement”? *Essential Balance* from Omega Nutrition, for example. However, you may want to experiment with other EFA ratios. In that case, instead of *Essential Balance*, get their flax oil and sunflower oil and blend them according to these guidelines:

- **1:1 ratio:**
  mix 3 parts fresh flax oil with 2 parts fresh sunflower oil.

- **2:1 ratio:**
  mix 1 part fresh flax oil with 2 parts fresh sunflower oil.

- **3:1 ratio:**
  mix 1 part fresh flax oil with 3 parts fresh sunflower oil.

Be sure to keep your homemade EFA supplement in an opaque container and store it in your refrigerator. Stick with any experiment for a few months, thus giving yourself enough time to make observations you can rely on.

**Kids Have Special Needs**

Recent research has demonstrated a link between EFA deficiency and Attention Deficit Hyperactivity Disorder (ADHD, the term used to describe children who are inattentive, impulsive, hyperactive, and unruly). This is not surprising, since the brain’s gray matter is 50% EFAs. Omega-3 in particular accumulates in the brain during a child’s first 18 months, and omega-6 is required for normal growth and development.

There is an EFA product for children on the market, a blend of 5 fresh oils (flax, sunflower, sesame, pumpkin seed, and borage) at a 1:1 ratio, flavored with natural butterscotch. The flavoring is derived from herbs and spices, contains nothing artificial—no sugar, MSG, gluten, or alcohol. The product, the only one of its kind, is called *Essential Balance Jr.*, another Omega Nutrition product.

An alternative is to blend a 1:1 ratio according to the directions above. In either case, the following daily intake is recommended:

- 6 mos. - 2 yrs .. 1/4-1 tsp.  
- 2-5 yrs .. 1 tsp.  
- 5-12 yrs .. 1-2 tsp.  
- 13+ yrs .. 1 Tbsp.

You may want to experiment with other ratios after your child reaches puberty—that is, after the critical brain formation period.
Dietary Guidelines

In Chapter 3, I recommended that most people should aim to have about 25% of their calories come from fat. The amount of supplementation recommended above, combined with the general dietary guidelines in The 25% Fat Plan will allow you to do that.

![The 25% Fat Plan](image)

Goodbye Lipohysteria

Health professionals sometimes call fear of fat “lipohysteria”. The basis for it is misinformation, lack of knowledge, or both. But the information and knowledge exist, so the low fat, no fat fad will fade. You can easily imagine that eventually the lady we envisioned in Chapter One who doesn’t know anything about vitamin C, will find out about it, and that will be the end of her unhealthy diet.

The current fad is not really new, it’s a recurrence. In an earlier manifestation, Nathan Pritikin was a prime mover. He advocated 10% or less of calories from fat. Ann Louise Gittleman, who has a master’s degree in nutrition from Columbia University, was the Nutrition Director at the Pritikin Longevity Center. In her book Beyond Pritikin, she writes:

“While in the Pritikin view fat was the dietary cause of most degenerative disease, the latest medical opinion was that the right kind of fat was a panacea for most diseases. Pritikin said that fat was the problem. I was seeing fat as the solution.”
Prior to the 20th century, next to nothing was known about nutrition. During the 20th century, nutrition emerged as a genuine branch of science. To the non-scientists among us, it also emerged as a vital aspect of preventive medicine, or self-care.

We have learned much about protein and carbohydrate, vitamins, minerals, and enzymes. Mostly due to misinformation and disinformation, however, fats have been maligned and misconstrued, the very word causing us to react, “fat... yuck... bad”.

Now it’s time for us to get up to speed on this subject. Yes, there are bad fats, most of them made bad by industrial manipulation. There are also good fats—not just good because they’re natural and undistorted, but because you can’t optimize your health without them.

**Goodbye Cholesterophobia**

The statistics tell us that the rising rate of deaths from heart attacks corresponds to a rising rate of cholesterol in the blood. But does that mean cholesterol causes heart attacks?

That’s unlikely. For one thing, while the increase of heart disease has risen by more than 350% in this century, the consumption of dietary cholesterol has remained relatively constant. Also, consider these points:

- Your liver and brain make about 1.5 grams of cholesterol every day.
- About 10% of the dry weight of your brain is cholesterol.
- Cholesterol is a basic raw material you use to make vitamin D, cell membranes, and hormones.

For these reasons, it is vital for you to have roughly a third of a pound of cholesterol in your body at all times. Ordinarily, as your consumption of cholesterol increases, your internal production automatically decreases. If we didn’t make it ourselves, making cholesterol pills to supplement our diets would be a multi-million dollar industry.

So if it isn’t a cause of heart attacks, what is it, why is an excess of it associated with heart attacks, and how can you lower it?

**What cholesterol is:** It’s a fatty, wax-like substance (chemically, a form of alcohol) your body makes from molecular fragments of fats and carbohydrates.

**“Good” and “Bad” Cholesterol:** There really is no such thing as “good” and “bad” cholesterol. Cholesterol is cholesterol and it is good when in balance with all the other nutritional building blocks in your body.

*HDL cholesterol* is often called “good”. HDL is the abbreviation for *high density lipoprotein*, one of the vehicles that transport cholesterol in your bloodstream. It is a thin film of fat and protein that surrounds the cholesterol, floating it in your bloodstream. HDL is the kind of lipoprotein that carries your cholesterol from your cells to your liver.
LDL cholesterol is often called “bad” cholesterol. LDL is the abbreviation for low density lipoprotein, which carries cholesterol from your liver to your cells.

No matter what kind of lipoprotein vehicle, the cholesterol inside is simply that. Whether the lipoprotein is relatively dense or not is neither good nor bad. Rather, researchers have found that high levels of HDL lipoprotein are associated with a low rate of heart disease, while the opposite is true of LDL lipoprotein. The HDL factor is simply a sign that it is less likely that there will be excess cholesterol, which tends to accumulate in the circulatory system. The fact that cholesterol is usually a constituent of arterial plaque does not mean that LDL cholesterol (that is, cholesterol being transported by LDL lipoprotein) is bad. Rather, it’s an indication that the cholesterol metabolism is out of balance.

Medical professionals look for the optimum 3:5 ratio of HDL - LDL lipoprotein carrying cholesterol in your blood. The ratio between total cholesterol and HDL can also be tested. A ratio of around 2 is translated as a very low risk of developing heart disease; a ratio of 5 or more means very high risk. A ratio in the 3 and 4 range can be considered average, but in a nation where the number one cause of death is heart disease, “average” is not good.

An unfavorable ratio—too much LDL cholesterol—indicates:

- excess fat intake, particularly long chain saturated (animal) fat, or
- faulty fat metabolism, or
- in most cases, both of the above

The goodness and badness associated with HDL and LDL cholesterol is a bit of medical shorthand that was misinterpreted after it slipped into the mainstream.

**Excess Cholesterol:** There are two prominent factors: how you live, and how you eat.

1) Your cholesterol level tends to go up according to the degree of stress you are under, since cholesterol is a major raw material you use to make anti-stress hormones. Persistent internal stress or exhaustion usually coincides with high cholesterol levels because the body is working to produce a greater supply of antistress hormones.

2) Regarding the dietary factor, your cholesterol level also tends to go up according to how much saturated fat you eat, not how much cholesterol. (Remember: your internal production of cholesterol will go up or down according to your cholesterol consumption.)

**Lowering Cholesterol:** If you are alarmed about your cholesterol level, fresh flax oil can lower cholesterol by as much as 25%, and aerobic exercise will increase your HDL lipoproteins (in other words, it will tend to normalize your fat metabolism).

The herbs ginseng, hawthorn berries, and gugulipid reputedly help lower cholesterol, but generally what will help most is lowering your consumption of saturated fat (see 18 Ways to Lower Fat, p. 45).
CHAPTER SIX

Losing Weight by Getting Off the Low Fat Bandwagon

The average American gets more than 40% of their calories from fat—way out of balance. Somewhere along the way, however, by pushing toward a no fat target, the low fat fad veered off on a weird and potentially dangerous detour.

What should your target be? A consensus of experts is that 25% of your calories should come from fat. The 15% reduction in fat calories means that most Americans should reduce fat by roughly 40%.

How to Lose Weight by Adding Fat--Good Fat

I was the director of marketing at a small vegetable oil company named Spectrum Naturals from 1986 through 1989. In 1987 an even smaller vegetable oil company named Omega Nutrition, based in Vancouver, came to us with a product they had introduced in Canada the previous year. It was fresh flax oil. They proposed to introduce it to the U.S. natural foods trade by making it for us under our label. We enthusiastically took it on. I named Spectrum’s fresh flax oil “Veg-Omega-3”; and within a year and a half it was on the shelves of most U.S. health and natural foods stores.

It was the first time any of us had seen a fresh vegetable oil and most of us began to use it. We all felt energized by it, and intuitively, I knew that Omega Nutrition had advanced the technology of making vegetable oil by a quantum leap. I told everybody who would listen to me that it was the most important food supplement to be introduced to the natural foods trade in a decade.

Two ladies that worked for Spectrum were overweight. They both began using fresh flax oil and neither one made any other changes in lifestyle—no special diet, no new exercise program. One of the ladies lost about fifty pounds, the other lost about thirty (and cured her psoriasis). They were certainly among the first in the U.S. to lose weight due to fresh flax oil, but not the last:

“Many of my friends and clients report that, after adding one to two tablespoons a day of flax seed oil to their diets and eliminating poisonous fats, they have lost cravings for fatty foods and have experienced continued weight loss, increased energy, and a sense of dietary satisfaction.”

John Finnegan, The Facts About Fats, Celestial Arts, Berkeley, CA

Vegetable oils are high in calories. How did they lose weight by adding calories?

“(EFAs) stimulate metabolism, increase metabolic rate and oxidation, and speed up the rate at which our bodies burn fats and glucose when they get more than 12 to 15% of total calories as EFAs. In these quantities (upwards of 3 tablespoons per day), EFAs help burn off excess fats, and help a person to lose weight and stay slim.”

Udo Erasmus, Fats That Heal, Fats That Kill, Alive Books, Vancouver, B.C.
Like the ladies I knew in 1987, you might lose weight by adding flax oil to your diet. Obviously, due to metabolic individuality, results will vary. At the very least, however, the addition of fresh flax oil and other fresh EFA supplements will help dissolve accumulated trans fats, hydrogenated fats, and excess saturated fat, making your cells more supple and functionally efficient. (See page 52 for the recipe, “Optimal Drink”, that helps dissolve trans fatty acids.)

In assessing the weight loss programs promulgated by other books, remember these points:

1) You can’t tell what your ideal weight should be by weight tables—they are merely statistical averages.

2) You can tell if you are overweight simply by sight and touch.

3) In any week that you eliminate three meals worth of food, especially the starchy carbohydrate portions, you will lose about a pound.

4) In any week that you exercise at least an hour a day without increasing your intake of food, you will lose about a pound.

5) Losing more than a couple of pounds per week? You are probably losing a lot of water. That weight will return.

6) Losing more than half a pound per day? You are probably losing muscle. That is damaging your body. Biologically, it is highly unlikely that you can lose more than one and a half pounds of fat per week.

7) If you are overweight, you are eating too much (probably starchy carbohydrates), not exercising enough, or not getting enough EFAs—and if you are like most Americans, all are true.

Statistics show that Americans are fatter than ever and no closer to avoiding heart disease than they were before the low fat craze. Mainly this is because excess calories, not fat, cause obesity and its slew of health hazards—a detail that got lost somewhere between the lab and the food store. It’s also because most consumers are replacing their fat with carbohydrates. All the extra calories in bread and pasta that aren’t used for energy are converted into fat and stores in the body, just like a hamburger -- meaning a low-fat diet may also put people at risk for serious health problems.”

Nutrition Science News, Nov.’96

The Important Point That’s Often Overlooked

The often overlooked point in the story about the two ladies who lost weight by taking flax oil is: good fat. When we told people about fresh flax oil, some of them said: “Oh, linseed oil.” No, not linseed oil.

Linseed oil comes from flax seed and is used for manufacturing paint, lacquer, and varnish. It’s devitalized by processing, and always on the verge of rancidity, if not already rancid.

Fresh flax oil comes from flax seed and is used in human nutrition. It is produced with extreme care to protect its vitality and to prevent rancidity (see Chapter 4).
Before Omega Nutrition introduced the technology for making fresh vegetable oils, linseed oil was sometimes bought from the industrial suppliers and bottled for human consumption. Fortunately for all of us, this questionable practice has become obsolete—a good fat has replaced a bad one.

<table>
<thead>
<tr>
<th>For:</th>
<th>Substitute:</th>
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<tbody>
<tr>
<td>Animal Protein</td>
<td>Vegetable Protein</td>
</tr>
<tr>
<td>Ice Cream</td>
<td>Frozen Yogurt</td>
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<tr>
<td>Frying</td>
<td>Baking, broiling, steaming</td>
</tr>
<tr>
<td>Whole Eggs</td>
<td>Egg white with tbsp. of Fresh vegetable oil</td>
</tr>
<tr>
<td>Sour Cream</td>
<td>Yogurt, Cottage Cheese</td>
</tr>
<tr>
<td>Butter</td>
<td>Fresh vegetable oil</td>
</tr>
<tr>
<td>Fat in Recipes</td>
<td>1/2 the amount specified</td>
</tr>
<tr>
<td>Fat in Frying/Sauteing</td>
<td>Liquid lecithin as pan coating</td>
</tr>
<tr>
<td>Cheese</td>
<td>Tofu</td>
</tr>
<tr>
<td>Poultry</td>
<td>Tempeh</td>
</tr>
<tr>
<td>Fast Food Burger</td>
<td>The salad bar</td>
</tr>
<tr>
<td>Meat Every Day</td>
<td>Meat 1-3 times per week</td>
</tr>
<tr>
<td>Cream or Butter Sauces</td>
<td>Sauces made with vegetable broth or low-fat meat stock</td>
</tr>
<tr>
<td>Non-Dairy Creamer</td>
<td>Low-fat milk</td>
</tr>
<tr>
<td>Buttered Vegetables</td>
<td>Fresh vegetable oil, plain or seasoned</td>
</tr>
<tr>
<td>Chips</td>
<td>Fruit/Vegetables</td>
</tr>
<tr>
<td>Candy</td>
<td>Fruit</td>
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<tr>
<td>Prepared Foods</td>
<td>Cook from Scratch</td>
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</table>
CHAPTER SEVEN

Where to Find FRESH Vegetable Oils

“Spread the word about the good fats, Americans have been misinformed for so long.”

Artemis Simopoulos, M.D., The Omega Diet, Harper Collins, NY

Logically, you would expect to find fresh vegetable oils in health and natural foods stores. In the U.S., however, that will rarely be the case, except for EFA supplements—fresh flax oil and flax oil spinoffs—which you’ll find almost everywhere. I know this from firsthand experience. Allow me to digress here for a few paragraphs . . .

In 1995-96, I owned a company, Rohé Natural Products, that sold fresh vegetable oils to health and natural foods stores. Or attempted to—it was slow going. The problem was, virtually nobody at either the store level or the consumer level knew the story I’m attempting to tell in this book.

We did our best to educate people with a series of free pamphlets. A few hundred stores worked with us trying to develop the market for fresh oils and maybe we would have succeeded over time. But in the summer of ’96, after being in business for about two years, the factory of the company that was making the oils for us, Omega Nutrition, burned down.

We tried various things to keep the business going while the factory was being rebuilt, but the interruption was just too long. I shut the business down and went on to other endeavors. As I write this, over four years later, there are now fewer stores carrying fresh vegetable oils rather than more of them.

So now back to the topic—where you can find fresh vegetable oils. That means a review of the companies that make them. Before I do that, however, I’ll review what I’ll call the “architecture” of fresh vegetable oils.

You’ll recall that so far I’ve written about fresh vegetable oils in general and about EFA supplements in particular. That’s the architecture: fresh vegetable oils are the **category**; EFA supplements such as fresh flax oil are a **niche**. And oddly enough, there is only one company working the category, while four work the niche. (There are more than five brands of flax oil and flax oil spinoff EFA supplements because other companies contract with one of the five to make products for them. For the five, this represents the “private label” or “contract manufacturing” portions of their businesses.)

The Category Player

You’ll recall that when I was in the fresh vegetable oils business, I chose Omega Nutrition as my contract manufacturer. One reason was precisely because they are the category player, with a wide range of both fresh culinary oils and EFA supplements. Another reason was that I know the owners personally and through business experiences with them. I trust their integrity and commitment to the highest possible standards, and respect their pioneering role in MAPP oil production, which they have trademarked under the name *omegaflo*®.
You can take what I’ve said as a recommendation of Omega Nutrition, but let me make this absolutely clear: I do not benefit in any material way if you buy their products. Whether or not you tell them I recommended them makes no difference at all. Neither does it matter to me financially if you link to their website via natural-health-links.com. I have no affiliate relationship with them and will not have one. This way you can have confidence that there is no profit motive connected to my recommendation.

Omega Nutrition is a Canadian company, fairly widely distributed in Canadian health and natural foods stores. When I put Rohé Natural Products together, their hope was that my efforts would give them market penetration in the U.S. Since the fire aborted that design, what are you to do? Their factory (in Bellingham, Washington) is now rebuilt; buy from them directly, they sell via mail order via a paper catalog or the Internet. Their website, which is also a good source of information on this topic, is:

http://www.omeganutrition.com. Their address and order phone number are:

Omega Nutrition
800-661-3529

**The Niche Players**

The following companies make EFA supplements from vegetarian raw materials using MAP processes identified with their own trademarks. These companies do not sell directly to consumers.

Flora, Inc.
800-446-2110
http://www.florainc.com

Barlean’s
800-445-3529
http://www.barleans.com

Spectrum Naturals
800-995-2705
http://www.spectrumnaturals.com

Health from the Sun
800-458-8471
http://www.healthfromthesun.com

Two of the above companies—Flora and Spectrum—have been category players in the past. Apparently they dropped back to working the EFA niche only due to lack of demand for fresh culinary oils. Potentially, they could become category players again—in the marketplace, production expands to meet demand.

**Where You Won’t Find Fresh Vegetable Oils**

You won’t find fresh vegetable oils in any manufactured products—baked goods, salad dressings, sauces, etc. The chief reason for this is that there is no consumer demand for them, since hardly anybody knows the story I’m telling here. And when that demand begins to build, as you and your friends share the story, there will be some practical difficulties for manufacturers to surmount:
a) Fresh vegetable oils are not bland, they carry the flavor notes of the grains or seeds or nuts they’re made from. Manufacturers will have to learn how to work with flavorful oils in place of bland ones.

b) Fresh vegetable oils are not cheap. Having read this far, you understand the quality versus quantity equation. And so both the manufacturer and you will have to adjust to slightly higher price points.

In the meantime, the best you’ll be able to find in manufactured “natural” food products are those identified in the Vegetable Oil Quality Pyramid (page 29) as mid-range quality. The ingredient listing should identify the oil as one of the following:

- Certified Organic Oil
- Extra Virgin Olive Oil
- Unrefined Expeller Pressed Oil
- Expeller Pressed Refined Oil

Otherwise, you’re dealing with plain old solvent extracted oil, the lowest level of the vegetable oil quality pyramid, implicated in many of the modern era’s health problems. In other words, many products that would otherwise deserve to be called “excellent” from the natural and nutritional perspective, fail to reach excellence because of the quality of vegetable oil used to make them.

There is only one way to set this situation right: Exert your influence in the marketplace. Tell the stores where you buy natural foods that it’s their obligation to supply you with truly natural foods and that’s what your dollars will support. And tell the companies you’re supporting with your dollars the same thing. And while you’re at it, tell them all to read this book. Most of them won’t like it, but as the saying goes, Tough . . . !
CHAPTER EIGHT

Fresh Vegetable Oil Cookery

“Fresh—the only vegetable oils health conscious people should use.”

Elizabeth Huntley, Ph.D. Nutritionist, Huntley Research Center, Sun Valley, California

The main difference between cooking with ordinary vegetable oils and with fresh vegetable oils is that solvent extracted and expeller pressed oils are bland or tasteless, whereas fresh vegetable oils are flavorful and aromatic by comparison. It doesn’t mean that fresh vegetable oils are overpowering. In fact, it’s the high heat in processing that makes for heavy flavors in ordinary unrefined oils. The low heat generated in pressing fresh vegetable oils produces mild, in some cases quite subtle, flavors.

Fresh Vegetable Oil Profiles

Sunflower oil: The sunflower’s origins are in South America. Incas, who worshipped the sun as their god, used sunflower oil in diverse ways. Bursting with stored solar energy, rich in vitamin E, it adds the fresh taste of sunflower seeds to green salads, dressings, sauces, and baked goods.

Safflower oil: The safflower is native to the mountains of southwest Asia and Ethiopia, and is widely grown in India. In its fresh form, safflower oil has a delicately nutty flavor. A very versatile oil, it can be used for sautéing and baking, as well as in dressings, sauces, dips, grain and pasta salads, and mayonnaise.

Sesame Oil: The sesame seed is a nutritional staple in the Middle East. It also provides the familiar sesame flavor in traditional oriental stir-fries and macrobiotic cooking. Sesame oil contains sesamol, a natural antioxidant, making it very stable and suitable for all cooking needs.

Canola Oil: Canola (meaning “Canadian Oil”) is made from low erucic acid rapeseed, a close relative of mustard. Fresh canola oil has a rich, golden color and a strong savory flavor. It is best used in salad dressings and mayonnaise or directly on grains and vegetables.

Soy Oil: Soybeans are native to China and Japan, but are one of the most widely grown crops in the world. They are rich in protein but also contain almost 20% fat. Fresh soy oil has a light color and delicate flavor, and is equally as versatile as sunflower or safflower oils.

Other Profiles

While the following are not fresh oils, they have special characteristics that qualify them for consideration by health-conscious consumers.

Coconut Oil: The fact that coconut oil is 90% saturated fat has created a false impression in most people’s minds regarding this very valuable oil. It has a unique saturated fat structure called a medium chain
triglyceride (MCT). MCTs are easy to digest and to use for energy. Coconut oil’s MCTs contain 50% lauric acid, the dominant fat in human breast milk. Lauric acid is antiviral, antibacterial, antifungal, and provides powerful support for the immune system. The high saturated fat content of coconut oil makes it pointless to apply fresh vegetable oil processing techniques, since you can’t make trans fatty acids out of saturated fat. Omega Nutrition imports coconut oil that has been certified organically grown and produced.

Some popular writers claim that saturated fats in the diet inhibit the production of prostaglandins. Actually the reverse is true. Dietary saturated fats improve the body’s utilization of EFAs and protect them from becoming rancid. The kind of fat the body itself makes is saturated fats, which it needs for energy, for cell membranes, and a variety of other purposes. When lauric acid, a saturated fatty acid found in mother’s milk and coconut oil, is present in the diet, omega-6 accumulates in the tissues even when consumption of EFAs is low. Unfortunately, highly useful and beneficial coconut oil has been forced out of the food supply by adverse propaganda from the fabricated food industry, which would rather use cheap hydrogenated oils than more expensive coconut oil for shortening.

Price-Pottenger Nutrition Foundation Health Journal, Vol. 20 #3

**Olive Oil**: Probably the most highly favored cooking and salad oil of all, olive oil is made from the fruit of the olive tree, not the seed. So far, a technique has not been developed for fresh-pressing the soft olive flesh. But the traditional method for making extra virgin olive is a low temperature process and yields high quality oil. When extra virgin olive oil is packed in opaque containers, it reaches you in a condition that is as close as you can get to fresh quality.

**High-Temp Cooking Oil**: When we were in the vegetable oil business, we made a product by this name. It was designed for cooking temperatures above 325°F. It’s purpose was to give people a cooking oil more versatile for cooking and baking than either of its ingredients, fresh sesame oil and organic coconut oil. It was very popular and you can make your own version simply by blending equal amounts of the two ingredients.
# How to Use FRESH Certified Organic Unrefined & Unfiltered Vegetable Oils

<table>
<thead>
<tr>
<th>Temperature/Uses Fresh Oils</th>
<th>Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cold Preparation:</strong></td>
<td>Delicate molecular structure due to high omega-3 EFA content. Molecules are easily changed by heat into trans fatty acids and other potentially harmful isomers**(^*), and into free radicals.</td>
</tr>
<tr>
<td>Salad Dressings, Sauces, Marinades, Condiments</td>
<td>Superpolyunsaturates Flax, High-Lignan Flax, Extra Virgin Hemp, Pumpkin Seed Oil</td>
</tr>
<tr>
<td>120°F at most, just enough to take the chill off. Also use straight for EFA supplementation.</td>
<td></td>
</tr>
<tr>
<td><strong>Low Heat:</strong></td>
<td>Much lower omega-3 content. High omega-6 EFA (not as delicate) makes them more stable than superpolyunsaturates, but trans fatty acids and free radicals form if heat is too high.</td>
</tr>
<tr>
<td>Sauces &amp; Baking*</td>
<td>Polysaturates Soy, Sunflower (f), Safflower (f)</td>
</tr>
<tr>
<td>212°F Maximum</td>
<td></td>
</tr>
<tr>
<td><strong>Medium Heat:</strong></td>
<td>No omega-3 EFAs except for canola. Little danger of trans fatty acids or free radicals in this temperature range. (Treat canola like a polysaturate due to omega-3 content.)</td>
</tr>
<tr>
<td>Low to Medium Flame, Sautéing and Stir Frying</td>
<td>Monounsaturates, all relatively heat stable Canola, Olive, Sesame</td>
</tr>
<tr>
<td>325°F Maximum</td>
<td></td>
</tr>
<tr>
<td><strong>High Heat:</strong></td>
<td>Very stable molecular structure, therefore heat causes little or no change. High-Temp Cooking Oil is blended for flavor and versatility. Always liquid at room temperature. Coconut Oil is solid until 76°F. Neither requires refrigeration. Both can be strained or filtered and reused.</td>
</tr>
<tr>
<td>Browning, Crisping, High-Flame Frying</td>
<td>Special blend of monounsaturate and saturate Hi-Temp Cooking Oil, Sesame/Coconut Blend, Saturated: Coconut Oil</td>
</tr>
<tr>
<td>375°F Maximum</td>
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*When baking breads and muffins at temperatures around 325°F, the moisture keeps the interior temperature under 212°F.

**An isomer is a molecule whose structure, or shape, has been changed by heat or pressure, leaving it less useful, or even harmful.
FRESH VEGETABLE OILS IN YOUR KITCHEN

Cold Preparation Recipes

POWER BOOST SMOOTHIE

Ingredients:
1 cup fresh squeezed orange juice
1 medium frozen banana
2 tsp. FRESH Flax Oil
1 heaping tsp. spirulina powder
1 tsp. vitamin C crystals

Instructions:
Mix all ingredients in blender til smooth.

OPTIMAL DRINK

Ingredients:
Fresh, organic, raw juices, 2 ounces each:
Carrot
Parsley
Celery
FRESH vegetable oil, 1 ounce
Raw milk or raw cream, 1 ounce

Instructions:
Add ingredients to blender, blend briefly.

[This recipe is courtesy of Aajonus Vonderplanitz, Nutritionist and Director of Optimal Ways of Living, Santa Monica, California. Aajonus says, “This drink is excellent for strengthening cells and cleaning trans fatty acids (plastic) out of cells.”]

STRAWBERRY BANANA SHAKE

Ingredients:
1 medium banana
1 cup frozen strawberries
1/2 cup milk (rice, soy, almond, cow, or goat)
1/2 cup vanilla yogurt
2 tsp. FRESH Flax Oil

Instructions:
Mix bananas, strawberries and milk in a blender until smooth. Blend in yogurt and oil for a few seconds. Drink immediately.
PIQUANT DRESSING

*Ingredients:*
1 cup FRESH vegetable oil
1/4 cup apple cider vinegar
2 cloves garlic
1 tsp. French-style mustard
1/2 tsp. soy sauce

*Instructions:*
Mix all ingredients in a bottle or jar suitable for shaking vigorously. Peel and split the garlic cloves before adding them, or squeeze in a garlic press.

*Variations:*
Other kinds of oils and vinegars can be substituted. The ratio of oil to vinegar can be altered from four to one to three to one for a more sour taste, to five to one for less sour. Herbs such as dill, tarragon, parsley, rosemary, and thyme can be added. Tomato sauce or mayonnaise can be substituted for mustard and soy sauce. As in other recipes, what’s good is what you like.

FRESH SEED DRESSING

*Ingredients:*
1 cup fresh sunflower seed meal
1 cup fresh sesame seed meal
1 1/4 cup FRESH vegetable oil
1/2 cup lemon juice
1 tsp. oregano
1 tsp. ground basil
1/4 tsp. tarragon
1 tsp. thyme
1/4 tsp. celery seed
2 Tbsp. soy sauce

*Instructions:*
Mix in blender or shake in jar. Yield: 1 quart. Make sunflower and sesame meals by grinding the seeds in a blender or mill.

*Adapted from The Sunburst Farm Family Cookbook.*
GINGER FLAX SALAD DRESSING
WITH CILANTRO AND MINT

*Ingredients:*
- 1/2 cup cilantro leaves
- 1/2 cup mint leaves
- 2 Tbsp. ginger
- 2/3 cup lemon juice
- 1/3 cup FRESH flax seed oil
- 1 tsp. xanthan gum

*Instructions:*
1. Thoroughly wash mint and cilantro leaves.
2. Coarsely chop leaves.
3. Combine remaining ingredients, except xanthan gum, and blend with Cuisinart Quick Prep or blender.
4. Add xanthan gum slowly, continuing to mix. Mixture should thicken and become creamy.

*Note:* Xanthan gum takes a few minutes to thicken to full viscosity.
*Note:* Any other fresh vegetable oil can be substituted for flax oil.

*From The Healthy Living Cookbook; Donna Gates, Body Ecology Publications, Atlanta, Georgia.*

LEMON AND CILANTRO FLAX OIL DRESSING

*Ingredients:*
- 3/4 cup lemon juice
- 1/4 cup FRESH flax seed oil
- 3/4 cup water
- 1 tsp. garlic, finely chopped
- 1/2 cup cilantro leaves
- 1/2 tsp. xanthan gum

*Instructions:*
1. Put all ingredients (except xanthan gum) into a blender and blend until creamy. If using Cuisinart Quick Prep, add ingredients (except xanthan gum) into blending jar and blend until creamy.
2. Slowly add xanthan gum and continue blending until thick.
3. Chill before serving. Easily keeps a week if refrigerated.

*Note:* Any other fresh vegetable oil can be substituted for flax oil.

*From The Healthy Living Cookbook, Donna Gates, Body Ecology Publications, Atlanta, Georgia.*
GREEN GODDESS SALAD DRESSING

Ingredients:
- 1 cup chopped green scallions
- 1 cup chopped parsley
- 2 cups water
- 1/2 cup FRESH vegetable oil
- 1-1/2 tsp. xanthan gum
- Herbamare to taste
- 1 Tbsp. fresh garlic, finely chopped
- 1/2 cup lemon juice
- 1/4 cup apple cider vinegar

Instructions:
Blend all ingredients in Cuisinart or food processor except xanthan gum. Add xanthan gum slowly to thicken.

From The Healthy Living Cookbook, Donna Gates, Body Ecology Publications, Atlanta, Georgia.

INCREDBILE SALAD DRESSING

Mix:
- 2 Tbsp. fresh lemon juice (approx. 1/2 lemon)
- 1 clove garlic, pressed or minced
- Pinch of any or all of the following herbs, dried or freshly chopped:
  - thyme
  - marjoram
  - rosemary
  - basil
  - dill
- 1/2 tsp. tamari soy sauce (or to taste)

Instructions:
Allow to stand for five minutes or more while flavors blend.

Toss:
- 2 Tbsp. FRESH Pumpkin Seed Oil
- 4-6 cups mixed greens
Add lemon juice mixture and toss again. Add wet ingredients such as tomatoes or cucumbers.

Recipe courtesy of Elizabeth Huntley Ph. D., Nutritionist, Huntley Research Institute, Sun Valley, CA.
GARLIC TOFU MAYO

Ingredients:
- 1/2 lb. soft tofu
- 5 Tbsp. FRESH Sunflower, Safflower or Soy Oil
- 1 Tbsp. + 1 tsp. lemon juice
- 1 tsp. Dijon mustard
- 1 tsp. tamari
- 1/2 tsp. sea salt
- 1 medium clove garlic, crushed

Instructions:
Mix in blender until smooth. Refrigerate until used.

GARLIC CHILI MAYO

Ingredients:
- 8 egg yolks
- 1/2 cup FRESH Flax-Sunflower Oil with Garlic & Chili
- 1/2 cup FRESH vegetable oil
- 1 Tbsp. organic apple cider vinegar
- 1 tsp. shoyu or tamari soy sauce
- 1 tsp. herb seasoning (optional)

Instructions:
Blend egg yolks alone for 30 seconds. Slowly drizzle in half of the oil. Add other ingredients, then drizzle in the rest of the oil. Don’t overblend.

Note: This mayo can be made more or less spicy by increasing or decreasing the Flax-Sunflower Oil with Garlic and Chili, adjusting the other oil accordingly. (Flax-Sunflower Oil with Garlic & Chili is made by Omega Nutrition.)

Note: The herbs can be fresh or dried, straight or mixed, according to preference or availability.

TOMATO-CUCUMBER SALSA

Ingredients:
- 2 coarsely chopped medium ripe tomatoes
- 1 cup seeded and chopped cucumber
- 1/4 cup chopped fresh cilantro
- 1/2 cup finely chopped red onion
- 1 seeded and finely chopped jalapeno pepper
- 2 Tbsp. FRESH Flax-Sunflower Oil Blend with
- 1 Tbsp. minced fresh garlic
- 1 Tbsp. fresh lemon juice, 1 tsp. sea salt

Instructions:
Combine all ingredients in a bowl. Will keep a week in fridge.
COOL SLAW

*Ingredients:*
3 cups finely shredded green cabbage
1 cup finely shredded red cabbage
1 cup almonds
6 Tbsp. FRESH Safflower, Sunflower, or Soy Oil
6 Tbsp. water
2 Tbsp. organic apple cider vinegar
1 Tbsp.+ tamari
1 tsp. paprika

*Instructions:*
Shred cabbage very finely by hand or in food processor. Mix remaining ingredients in blender until smooth. Combine mixture with cabbage in a bowl, mixing well. Serve chilled.

BLACK BEAN SALAD

*Ingredients:*
3 cups black beans, cooked
2 cups corn, cooked
1/2 cup red onions, minced
1 cup red pepper, cut
3 cloves garlic, crushed
2 tsp. cumin
1/2 cup FRESH vegetable oil
1/2 cup lime juice
1 tsp. sea salt
1 tsp. chili peppers, crushed
1/2 cup cilantro
1/2 cup parsley

*Instructions:*
Combine beans, corn, onions, red peppers, cilantro, parsley and chili peppers. Mix garlic, lime juice, oil and spices. Pour dressing over salad and mix.
HUMMUS

*Ingredients:*
- 1 cup garbanzo beans, cooked
- 1/3 cup FRESH sesame oil
- 1/3 cup lemon juice
- 2 cloves garlic
- 1/2 tsp. sea salt
- 1 Tbsp. parsley, chopped

*Instructions:*
Blend beans in food processor. Slowly beat in lemon juice alternately with the oil. Add garlic and salt. Puree should be smooth and not too thick. If too thick add (garbanzo) water. Chill and serve sprinkled with parsley.

GRINNING TUNA SALAD

*Ingredients:*
- 1/2 lb. tofu (firm style)
- 6 Tbsp. mayonnaise (tofu or regular)
- 2 1/2 tsp. tamari
- 1 Tbsp. + 1 tsp. nutritional yeast flakes
- 1 Tbsp. sweet pickle relish
- 1/2 tsp. dill weed
- 1 Tbsp. chives (optional)
- 1/2 cup alfalfa sprouts (optional)

*Instructions:*
Mash tofu in medium bowl. Add remaining ingredients, mixing well. Serve as a sandwich spread or use as a dip.
SEED ENZYME MILK
(makes full blender jar: 5 cups)

Ingredients:
1 Tbsp. chia seeds
1 Tbsp. flax seeds
1 Tbsp. sunflower seeds
1 Tbsp. pumpkin seeds
2 Tbsp. walnuts
2 Tbsp. raw sesame tahini
2 Tbsp. unheated, unfiltered honey
2 Tbsp. FRESH vegetable oil
dash of vanilla extract (optional)

Instructions:
In a glass, soak seeds and walnuts overnight, or for at least four hours. Pour into blender jar, add a half glass of water. With blender running, add tahini, honey, vanilla, and enough additional water to reach desired level (depending on the thickness you desire). Blend only until smooth. Finally, add fresh vegetable oil, making sure vegetable oil is blended only long enough to mix in thoroughly.

Note: This “milk” is rich in EFAs and protein. Because of the soaking, it is also particularly rich in enzymes. It can be kept for several days in the refrigerator. Seed enzyme milk can be used variously, but should not be used for cooking.
Low Heat Recipes

CORN BREAD

Ingredients:
3 cups cornmeal (whole, not degerminated)
2 cups milk
3 eggs, separated
1/4 cup FRESH vegetable oil
1/4 cup honey or molasses
1 tsp. salt

Instructions:
Beat egg yolks and combine with all ingredients except egg whites, mixing to remove all lumps. Beat egg whites until stiff and fold into batter. Bake in oiled pan for about an hour at 375°, the exact time depending on the coarseness of the cornmeal.

BLUEBERRY MUFFINS

Dry mixture:
1 cup whole wheat flour
1 tsp. baking powder
1/2 tsp. baking soda
1/4 tsp. sea salt
1 cup organic blueberries

Moist mixture:
1 free range egg
1/4 cup Hi-Temp Cooking Oil
1/3 cup honey
3/4 cup soy milk (plain)
1 cup oatmeal

Instructions:
Preheat oven to 400°F. In medium bowl combine soy milk and oatmeal; soak for 10 mins. Combine first 4 ingredients of dry mixture in separate large bowl. Fold in blueberries. Beat egg lightly in medium bowl. Add Hi-Temp Cooking Oil and honey to egg; beat. Blend together egg mixture and oatmeal. Add moist mixture to dry mixture and stir lightly. Grease muffin tray or use paper cups. Fill to top. Bake for 20 mins. or until done.
Medium Heat Recipes

BASQUE BISQUE
(serves 6-8)
Ingredients:
6 Tbsp. FRESH Sesame, Safflower, or Olive Oil
2 medium eggplant
3 red onions
2 red peppers
1 green peppers
3 large ripe tomatoes
8 large garlic cloves
1 cup chopped cilantro
4 cups water
1 cup sour cream (low fat)
1 Tbsp. + 1 tsp. tamari
2 tsp. salt
Instructions:
Chop all vegetables finely and mince garlic, keeping separate. Put 2 Tbsp. oil in large pot over medium heat. Add onions and sauté until brown. Add peppers and garlic; sauté for another couple of minutes. Add remaining oil and eggplant, continue sautéing until eggplant is tender. Add tomatoes and cilantro, sautéing for another 5 minutes. Add water for 5 minutes. Take half of the mixture, puree in blender. Combine them, stir in sour cream, and serve hot.

CROUTONS
(serves 6)
Ingredients:
3 cups bread, cubed
1/3 cups Hi-Temp Cooking Oil
2-3 cloves garlic, crushed
2 Tbsp. parmesan cheese, grated
2-3 tsp. fresh parsley
Instructions:
Spread cubes on cookie sheet. Bake in 300°F oven for 15 minutes. In large skillet, heat Hi-Temp Cooking Oil, add garlic, cheese and parsley. Add bread cubes, tossing to coat well. Return cubes to sheet; bake for 15 mins. or until crisp and slightly browned. Cool.
GINGERED ASPARAGUS

Ingredients:
3/4 cup organic apple cider vinegar
1 1/2 Tbsp. fresh ginger, grated
2 Tbsp. maple syrup
1 lb. fresh asparagus
1 clove garlic, crushed
3-4 Tbsp. FRESH Sesame Oil
1/2 tsp. sea salt
1 tsp. soy sauce

Instructions:
Combine vinegar, ginger and maple syrup and bring to a boil. Cook uncovered over medium heat 10-15 minutes. Set aside. Cut off 1/2” of lower stalk of asparagus. Bring water to a boil. Cook asparagus 5-8 minutes until tender. Remove from heat and rinse with cold water. Combine garlic, oil, salt and soy sauce with vinegar mixture. Arrange asparagus on a plate. Cover with marinade and refrigerate 1-2 hours before serving.

CORN & KIDNEY BEAN RELISH

Ingredients:
1-1/2 cups fresh or frozen corn
1-1/2 cups cooked kidney beans
1/2 large red pepper
3 Tbsp. chopped red onion
2 Tbsp. FRESH Flax-Sunflower Blend
2 Tbsp. chopped fresh cilantro
1 Tbsp. fresh lime juice
2 medium garlic cloves, crushed or minced
1 jalapeno pepper, chopped finely
1/2 tsp. sea salt

Instructions:
If using frozen corn, allow to thaw. Chop red pepper and roast at medium high heat in cast iron skillet using a tiny amount of Hi-Temp Cooking Oil so it doesn’t stick. Allow to cool. Combine all ingredients together in bowl. Serve with warm soft corn tortillas, or chips. Or serve as a side dish with fish, chicken or tofu.
BUCKWHEAT PANCAKES

Ingredients:
1 cup buckwheat flour
1 cup whole wheat flour
1 tsp. salt
2 tsp. baking powder
1-3/4 cup milk
2 tsp. FRESH vegetable oil
2 eggs
1/2 cup honey

Instructions:
Let the ingredients sit until they are at room temperature, then add liquid to dry ingredients. Cook on a griddle or pan with evenly distributed heat until bubbles appear, then flip. Yield: 18-20 cakes.

Note: Buttermilk can be substituted for milk. The pancakes can be made fluffier by separating the eggs, beating the whites stiff, then folding them into the mixture after all the other ingredients are mixed.

From The Sunburst Farm Family Cookbook.

APPLESAUCE PANCAKE

Blend:
2 beaten eggs
2 Tbsp. FRESH Sesame Oil
1 cup applesauce
1/2 cup rice beverage, organic milk, or drinking water
1/2 cup maple syrup
1/2 tsp. cinnamon
1/4 tsp. nutmeg
1/4 tsp. grated ginger

Stir in:
2 cups whole grain pancake mix

Heat:
1 Tbsp. Hi-Temp Cooking Oil in 8” skillet. Pour in batter and heat on medium flame until edges start to look done. Bake in oven at 350° F until center is done (knife inserted in center is not wet with dough; approximately 20 minutes).

Recipe courtesy of Elizabeth Huntley, Ph. D. Nutritionist, Huntley Research Institute, Sun Valley, CA.
CHINESE SAUCE

Ingredients:
- 1/4 cup FRESH sesame or Hi-Temp Cooking Oil
- 1 cup onion, chopped
- 2 cloves garlic, chopped
- 1 tsp. salt
- 1/8 tsp. pepper
- 1 cup celery, finely chopped
- 3/4 cup water
- 1/3 cup cold water
- 2 tsp. soy sauce
- 2 Tbsp. arrowroot
- 1 tsp. honey

Instructions:
Heat oil in a large skillet. Add onions, garlic, celery, salt, and pepper. Saute for a minute, then add 3/4 cup water. Cover and cook 4 minutes. Mix cold water, soy sauce, arrowroot, and honey. Make sure there are no lumps. Add to the above mixture and cook just to boiling point. Serve over whole grains, whole-grain pasta, leftover vegetables and/or meat.

From The Sunburst Farm Family Cookbook.

EAN’S VEGETABLE CURRY

(serves 12)

Ingredients:
- 2 large onions, sliced very thin
- 1 1/2 lbs. potatoes, med. chunks
- 1 lb. zucchini, small chunks
- 1 lb. eggplant, small chunks
- 1 lb. cauliflower, florets and stems
- 1 lb. cabbage, chopped
- 1 lb. green beans, whole
- 1/2 Tbsp. minced garlic
- 6 Tbsp. curry powder
- 5 sprigs curry leaves (optional)
- 5 Tbsp. Hi-Temp Cooking Oil
- 14 fl.oz. coconut milk
- 1 Tbsp. sea salt
- 17 fl.oz. water (in 2 portions)

Instructions:
Heating Hi-Temp Cooking Oil in large pot. Brown potatoes and remove. Fry onions until brown; add garlic, continue frying. Add curry powder and leaves. Stir until mixture becomes dry. Stir 5 fl.oz. of water slowly to form a thick paste. Add cauliflower, then rest of water; stir. Add green beans, salt and cabbage. Stir and cover for 5 minutes. Add eggplant, zucchini and coconut milk. Add potatoes. Stir, cover and simmer until vegetables are cooked. Stir occasionally.
HEARTY PEA SOUP
(makes about 8 to 9 cups)
Ingredients:
1 onion, diced
2 Tbsp. FRESH vegetable oil
1 bay leaf
1 tsp. celery seed
1 cup green split peas
1/4 cup barley
1/2 cup lima beans
10 cups water
2 tsp. salt
dash pepper
1/2 tsp. basil
1/2 tsp. thyme
1 carrot, chopped
3 stalks celery, diced
1/2 cup parsley, chopped
1 potato, diced

Instructions.
Sauté onion in oil until soft, along with bay leaf and celery seed. Stir in peas, barley, and limas. Add 10 cups cold water and bring to a boil. Cook on low heat, covered, for about 1 hour and 20 minutes. Add salt, pepper, vegetables and herbs. Turn heat down as low as possible, and simmer another 30 to 45 minutes. Thin with additional water or stock if necessary.

Adapted from Laurel’s Kitchen.
**High Heat Recipes**

**BABA GANOUJ**
*Ingredients:*
- 1 medium eggplant
- 2 Tbsp. Hi-Temp Cooking Oil
- 2 Tbsp. Extra Virgin olive oil
- 1/4 cup fresh lemon juice
- 2 Tbsp. chopped fresh parsley
- 1 tsp. tamari
- 1/2 tsp. sea salt

*Instructions:*
Bake eggplant in 350°F oven 1 hour until soft. Peel. Mix with remaining ingredients in food processor or blender until smooth. Serve chilled as dip or sandwich spread.

**BAKED MARINATED TOFU**
(serves 6-8)
*Ingredients:*
- 2 lbs. firm tofu
- 1 cup Hi-Temp Cooking Oil
- 1/2 cup tamari
- 1/4 cup fresh lemon juice
- 1/4 cup finely grated fresh ginger root
- 8 large cloves finely minced or crushed garlic
- 1 Tbsp. maple syrup
- 1 Tbsp. dried basil
- 2 tsp. organic apple cider vinegar

*Instructions:*
Slice tofu into 1/4" steaks. Mix remaining ingredients in medium bowl. Add tofu slices, cover, and marinate overnight in fridge. Bake slices in glass or stainless steel pan for 1 hour at 350°F, turning once. Cool. Serve either warm or cold.
JAPANESE SOBA SALAD

Ingredients:
1 lb. buckwheat soba noodles
1-1/2 cup shitake mushrooms
2 tsp. FRESH sesame oil
1 tsp. tamari
1 large red pepper
1 cup thinly sliced English cucumber
1/2 cup pea pods
5 Tbsp. Hi-Temp Cooking Oil
3 Tbsp. tamari
1 Tbsp. + 1 tsp. red wine vinegar
1 Tbsp. + 1 tsp. grated fresh ginger
1 Tbsp. maple syrup

Instructions:
Cook noodles according to instructions on package. Place in colander, rinse with water and allow to drain thoroughly. Slice mushrooms fairly thin. Sauté in cast iron skillet over high heat with 2 tsp. sesame oil, pressing out water occasionally with metal spatula. Sauté until crisp, then add 1 tsp. tamari, stirring constantly (be careful not to burn). Remove after one minute and set aside.

Cut pepper in quarters, then slice very thinly. Peel cucumber and cut in half. If you can’t find English cucumbers, seed regular cucumber with spoon. Slice very thin. Prepare pea pods by pulling off stems and slicing into small strips. Mix the last five ingredients together in bowl with wire whisk. Pour over soba noodles in large bowl, add vegetables and toss, being careful not to overmix.
SPICY CAJUN CORN CAKES

Ingredients:
- 1 lb. firm style tofu
- 3 cups bread or cracker crumbs
- 2-1/2 cups fresh or frozen corn
- 1 red onion
- 1 red pepper
- 1 cup grated cheese
- 1/4 cup parmesan cheese
- 2 Tbsp. tamari
- 1 Tbsp. + 1 tsp. nutritional yeast flakes
- 1 Tbsp. Extra Virgin olive oil
- 1 tsp. dill weed
- 1/2 tsp. sea salt
- 1/2 tsp. cayenne
- 1/2 cup Hi-Temp Cooking Oil for frying

Instructions:
Chop onion and pepper fairly fine. Sauté in olive oil until tender. Add corn, sauté for another minute, set aside. Mash tofu, mix all remaining ingredients except Hi-Temp oil together with tofu. Add sautéed vegetables, mixing well. Form into 1-1/2 inch balls. In large cast iron skillet, add enough Hi-Temp oil so that you have about 1/16 inch of oil in pan. Using high flame, when oil is hot, place balls in skillet, pressing down into 1/4 inch cakes with metal spatula. Fry til both sides are brown and crisp. Add additional oil as needed.

WHEAT GERM BLONDIES

Line an 8" x 8" pan completely with waxed paper.

Blend:
- 2 eggs
- 1/4 cup FRESH Soy, Sunflower Oil or Safflower Oil
- 1/2 cup maple syrup
- 1 tsp. vanilla

Stir in:
- 2 cups wheat germ
- 1/2 cup barley flour
- 1/2 tsp. non-aluminum baking powder
- 1/2 cup broken walnuts or pecans (optional)

Instructions:
Spread batter evenly into pan. Bake at 350° F for 30 minutes. Turn out of pan immediately and remove waxed paper. Cut into squares while hot.
SESAME CHOCOLATE CHIP COOKIES
(makes 16 cookies)

Ingredients:
1 cup whole wheat pastry flour
1/2 tsp. sea salt, 1/4 tsp. baking soda
4 Tbsp. maple syrup
3 Tbsp. Hi-Temp Cooking Oil
1 tsp. vanilla extract
1/4 tsp. organic apple cider vinegar
1/2 cup malt or fruit juice-sweetened chocolate chips

Instructions:
Sift flour, salt and soda into bowl. Mix next 4 ingredients in another bowl. Combine all ingredients, mixing well. Form into balls, pressing flat on greased cookie sheet. Bake 10-12 minutes in 375°F (preheated) oven until brown.

FRIED COCONUT BANANAS

Ingredients:
1 cup whole wheat pastry flour
3/4-1 cup rice milk
1/2 cup grated coconut
2 Tbsp. fructose
3/4 tsp. salt
6 bananas
1/2 cup Hi-Temp Cooking Oil

Instructions:
1. Mix flour, coconut, fructose and salt in a mixing bowl.
2. Drizzle in rice milk, while mixing thoroughly, to form a fairly thick batter.
3. Peel bananas, slice in half both lengthwise and widthwise.
4. Coat banana slices as thickly as possible in batter.
5. Pour Hi-Temp Cooking Oil into skillet, wok, or non-stick pan, place on stove, turn heat to high.
6. Fry bananas in hot oil til golden brown on both sides, adding oil as needed.
7. Drain and pat dry on paper towels.

Delicious with vanilla ice cream or frozen yogurt.
**COCONUT RICE**

*Ingredients:*
2 cups white basmati rice  
1 red onion  
4 Tbsp. Hi-Temp Cooking Oil  
3/4 cups shredded coconut  
1 Tbsp. tamari  
1 Tbsp. sea salt  
4 cups water  
2 large garlic cloves

*Instructions:*
Chop onion and garlic finely. Sauté in medium pot in 2 Tbsp. oil til tender. Add rice and sauté for another couple of minutes. Add water, bringing to rapid boil for 2 minutes. Turn down heat, cover, bring to low boil for 5 minutes. Turn down to lowest heat, simmering for 15 minutes. Turn off and allow to stand for another 5 minutes. While rice is cooking toast coconut in a 400°F oven til brown. Set aside. Over high heat, put remaining oil in non-stick pan, cast iron skillet, or wok. When oil is hot, add cooked rice. Toss often as rice browns. After several minutes add tamari and salt. Continue tossing for another few minutes. Add coconut, toss and serve.

**TROPICAL FRUIT MUFFINS**

*(makes 12 large muffins)*

*Ingredients:*
2 cups pineapple, mango, or guava juice (or a mixture of tropical juices)  
1 + 1/2 cups dried tropical fruit mix  
2 eggs  
1/2 cup Hi-Temp Cooking Oil  
1 cup whole wheat pastry flour  
1 cup unbleached white flour  
2 tsp. baking powder  
1/2 tsp. baking soda  
1/2 tsp. sea salt  
1/4 cup shredded coconut

*Instructions:*
Cut dried tropical fruit into tiny pieces, add juice, and soak overnight in refrigerator. The next day, beat oil and eggs thoroughly. Sift dry ingredients together. Add dry ingredients alternately with fruit juice to oil and eggs, just til batter is barely mixed. Add coconut. Pour into greased muffin pan. Bake for 20-25 minutes in pre-heated 350°F oven til brown, or until toothpick inserted in middle comes out clean.
SESAME CRACKERS

Ingredients:
1 & 1/2 cups whole wheat flour
1/2 cup soy flour
1/2 cup sesame seeds
1/2 cup water
4 Tbsp. Hi-Temp Cooking Oil
2 Tbsp. milk (dairy or soy)
1/2 tsp. salt

Instructions:
Mix all ingredients and make a stiff, pliable dough. Roll out—the thinner the better. Lay on an oiled and floured cookie sheet, sprinkle with salt and sesame seeds. With a fork, prick the crackers and mark them into squares. Bake at 350°F for 20 minutes, cut them after they have cooled a bit.

Note: Three options to reduce sodium:
1) Mix potassium salt half and half with regular (sodium) salt.
2) Use an herbal salt substitute.
3) Reduce amount of salt by half.
APPENDIX ONE

Recommended Reading on Fats & Oils

The Facts About Fats
John Finnegan, Celestial Arts, Berkeley, CA.

Fats That Heal, Fats That Kill
Udo Erasmus, Ph.D., Alive Books, Vancouver, B.C.

Essential Fatty Acids in Health & Disease
Edward Siguel, M.D., Ph.D., Nutrek Press, Brookline, MA.

The Omega-3 Phenomenon
Donald Rudin, M.D., & Clara Felix, Rawson Ass., N.Y., NY

Becoming Vegetarian
Melina, Davis, & Harrison, Book Publishing Co., Summertown, TN.

Flaxseed in Human Nutrition
Connane & Thompson, AOCS Press, Champaign, IL.

The Felix Letter (newsletter)
Clara Felix
P.O. Box 7094
Berkeley, CA 94707
APPENDIX TWO

Fatty Acid Profiles for Commonly Available Fresh Vegetable Oils
GLOSSARY

Lipid Language
A Lay Person’s Guide to Technical Fats & Oils Terms

**alpha-linolenic acid (LNA)**
The omega-3 essential fatty acid found in fresh flax oil. Other omega-3s, such as DHA and EPA (found in fish oils), are made in the body from LNA. LNA is found in lesser quantities in hemp, pumpkin, walnut, canola, and soy oils.

**cis-**
The natural double bond in the chain of carbon atoms of an unsaturated fatty acid. It is the opposite configuration of the unnatural *trans* form, as in a *trans fatty acid*.

**double bond**
Usually, the carbon atoms strung together in a chain to form a fatty acid are linked by a shared pair of electrons. Occasionally, there is an extra pair of electrons—a double bond. This causes a kink in the chain. One double bond (kink) = monounsaturated fat; two or more double bonds = polyunsaturated fat. (No double bonds = saturated fat.)

**essential fatty acid (EFA)**
A fatty acid you must get from foods since your body can’t produce it. There are 2 EFAs: alpha-linolenic acid (LNA; omega-3) and linoleic acid (LA; omega-6). After water, carbohydrate, and protein, needed more than any other nutrient. Deficiency causes problems in every cell, tissue, and organ.

**EFA balance**
The relationship between the two EFAs, usually expressed as the ratio between omega-6 and omega-3. Generally speaking, the optimum range is between 1 and 3 parts omega-6 to 1 part omega-3. The average American is grossly imbalanced—between 10 and 25 to 1.

**fat**
A molecule of fat or oil, made of three fatty acids attached to a glycerol “backbone”. Synonyms are “lipid” and “triglyceride”.

**fatty acid**
A chain of carbon atoms with an acid at one end and hydrogen atoms attached to the others. The length of the carbon chain can vary from 4 to 26 or more.

**fatty acid profile**
The composition of an oil regarding fatty acid content, usually presented in percentages; for example: Sunflower oil = 12% saturated fat, 19% monounsaturated fat, 69% polyunsaturated fat. If the oil has omega-polyunsaturated fat, the poly part is usually separated; for example: Flax oil = 9% saturated, 16% monounsaturated, 18% omega-6 polyunsaturated, 57% omega-3.
**flax**
Nature’s richest source of omega-3 (LNA, alpha-linolenic acid), rare in modern diets. It is more than twice as rich as fish oil in omega-3.

**forces -- gross and subtle**
Not terms generally used by oil chemists, nutritionists, or other scientifically trained people in reference to vegetable oils. In this book, I refer to pressure and heat as *gross forces* that cause structural changes to oil molecules, such as the creation of trans fatty acids. I refer to light and air as *subtle forces* that cause changes such as the formation of free radicals.

**free radical**
A molecular fragment with a single, unpaired electron. Gaining another electron makes a free radical whole again, so they attempt to grab them from whole molecules. In vegetable oils, free radicals are created by light in the process known as *photon decay*, and oxygen in the process known as *oxidation*. (Udo Erasmus estimates that photon decay is 1,000 times more damaging to oils than oxidation.) Free radicals change the structure of oil molecules (denature them), making them unsuitable for the functions they would normally perform. This is the probable connection to the theory that free radicals are causative in some diseases and in the aging process.

**gamma-linolenic acid (GLA)**
Made in the body from LA, linoleic acid. If your ability to make it is impaired, it can be supplied by borage, evening primrose, black currant, and hemp oils. Most successful in arthritis and PMS.

**hemp**
One of the first plants cultivated for making cloth and rope, closely related to marijuana. The oil is very well balanced, having a ratio of 3 parts omega-6 to 1 part omega-3, plus GLA. It’s taste resembles sunflower oil and it does not contain THC, the intoxicating compound in marijuana.

**hydrogenated fat**
An unsaturated fat, usually a vegetable oil, that has been processed with high heat, a metallic catalyst, and hydrogen to harden it. This kind of artificially saturated fat structurally resembles plastic molecules, which is the origin of the term “plastic food”.

**linoleic acid (LA)**
The omega-6 EFA found abundantly in almost all vegetable oils, particularly seed oils. While primitive man subsisted on roughly equal amounts of omega-6 and omega-3, the dietary ratio for modern man is between 10 and 25 parts omega-6 to 1 part omega-3, a highly imbalanced ratio.

**lipid**
See “fat”.

**long-chain fatty acid**
More than 14 carbon atoms in its chain.

**medium-chain fatty acid**
From 6 to 12 carbon atoms in its chain.
**monounsaturated fat (MUFA)**
A fatty acid with one kink (double bond) in its chain of carbon atoms. If they are dominant in the fatty acid profile—as in olive, sesame, canola, and nut oils—they are referred to as monounsaturated oils.

**oil (vegetable oil)**
A liquid fat. The more saturated fat, the less liquid. Coconut oil (91% saturated) only becomes liquid at 76°F. The more polyunsaturated, the more liquid. Superpolyunsaturation (omega-3) makes liquidity more dramatic. Even in your freezer, flax oil will remain liquid.

**oleic acid**
The monounsaturated fat most common in vegetable oils and dominant in olive, sesame, canola, and nut oils.

**omega**
The last letter in the Greek alphabet, signifying the last carbon atom in the chain that comprises a fatty acid.

**omega-3**
The family of polyunsaturated EFAs in which the first double bond (unsaturation) occurs 3 carbons from the end. Sometimes called superpolyunsaturates because they have 3 or more double bonds, whereas omega-6 polys have only 2. Largely lacking in modern diets, intake has decreased to 1/6 the level prevalent in 1850.

**omega-6**
The family of polyunsaturated EFAs in which the first double bond occurs 6 carbons from the end. Most Western diets favor omega-6 over omega-3 by 10 to 25 times. This is highly unbalanced, associated with major health problems such as inflammation, water retention, high blood pressure.

**omega-9**
See “oleic acid” above.

**oxidation**
While exposed to air, vegetable oil molecules oxidize, resulting in rancidity.

**partially hydrogenated fat**
Compared to hydrogenated fat (see above), not all the double bonds are artificially saturated. A greater variety of structural changes occur to the molecules (such as trans fatty acids) than in hydrogenated fat. Therefore, partially hydrogenated fat may be even more harmful than fully hydrogenated.

**photon decay**
The process by which light rays excite oil molecules, causing electrons to spin off to form free radicals, triggering a chain reaction that denatures the oil. Opaque containers prevent it; colored glass only slows it down.

**polyunsaturated fat (PUFA)**
An unsaturated fat that has two or more double bonds in the chain of carbon atoms. When they dominate in the fatty acid profile, the oil is referred to as a polyunsaturate; examples are soy, sunflower, and safflower.
**prostaglandins (PG)**
A group of hormone-like substances derived from EFAs that regulate many body functions. The EFAs are partially oxidized in a process controlled by enzymes made by your body for this purpose. They occur in 3 “series” -- series 1 and 2 are derived from omega-6 EFA, series 3 from omega-3 EFA.

**rancidity**
Oil molecules combined with oxygen, resulting in off flavors and bitter aftertaste. See also “oxidation”.

**saturated fat**
A fatty acid without double bonds in the carbon chain. Without kinks, the flat structure allows the relatively inactive molecules to stack up in solid form. The dominant fat in animal tissue, butter, and tropical oils. Only “bad” if in excess, or unnatural (margarine, shortening).

**trans fatty acid (TFA)**
“Trans” as in transferred. In this case, the pair of extra electrons in a double bond are transferred to the other side of the carbon chain by gross forces such as pressure, heat, and chemicals. Researchers suspect that this structural change into an unnatural form makes the fat harmful; implicated in heart disease, cancer, and other diseases.

**triglyceride**
See “fat”.

**unsaturated fatty acid**
One or more double bonds in the carbon chain, therefore includes both mono and polyunsaturates.
INDEX

A
acid group, 13
air as cause of “bad” fats, 19
air-free processing and bottling, 27–28, 30, 33
alpha-linolenic acid (LNA), 24, 74, See also omega-3 EFAs
Anderson, M.D., Scott E., 6
animal fats, 14, 15, 20, 40, 45
applesauce pan cake, 63
aroma of fresh vegetable oils, 32, 49
asparagus, gingered, 62
Attention Deficit Hyperactivity Disorder (ADHD), 39

B
baba ganouj, 66
babies’ needs for EFAs, 12, 39
“bad” fats, See also fats
     air as cause of, 19
     cholesterol and, 41–42
     due to excess, 15, 16, 18–19, 42
     expeller pressed oils, 30–31
     foods containing, 15, 20, 40, 45
     forces that create, 19
     versus “good” fats, 15–20
     heat as cause of, 19, 27, 30
     hydrogenated fats, 15, 17, 75
     light as cause of, 19, 27–28
     linseed oil, 44–45
     partially hydrogenated fats, 15, 17, 76
     polyunsaturated fats as, 16–19
     pressure as cause of, 19, 30
     rancid fats, 14, 19, 36, 44, 77
     saturated fats as, 15, 42
     solvent extracted oils, 30–31
     trans fatty acids, 16–19, 26
balancing EFAs, 35, 37–39, 74
banana shake, strawberry, 52
bananas, fried coconut, 69
Barlean’s company, 47
bean recipes, See also recipes
     baked marinated tofu, 66
     black bean salad, 57
     corn & kidney bean relish, 62
     hummus, 58
     tofu mayonnaise, 56
     tofu tuna salad, 58
Becoming Vegetarian (Melina, Davis & Harrison), 72
Beyond Pritikin (Gittleman), 40
bibliography, 72
bio-active lipids. See eicosanoids
blueberry muffins, 60
borage oil, 37
bottling fresh oils, 27–28, 30, 33
brain, EFAs and, 10, 12, 37, 39
breads, See also recipes
    applesauce pan cake, 63
    blueberry muffins, 60
    buckwheat pancakes, 63
    Cajun corn cakes, 68
    corn bread, 60
    croutons, 61
    sesame chocolate chip cookies, 69
    sesame crackers, 71
    tropical fruit muffins, 70
    wheat germ blondies, 68
buckwheat pancakes, 63
buying fresh vegetable oils, 46–47

C
Cajun corn cakes, 68
calories, average burned daily, 37
canola oil, 18, 49, 51
carboxyl group, 13
“caveman” EFA ratio, 37
cell membrane structure, 16–17, 21–22
children’s needs for EFAs, 12, 39
chilomicrons, 21
Chinese sauce recipe, 64
chocolate chip cookies, 69
cholesterol, See also fats
    in cell membranes, 22
defined, 41
    excess cholesterol, 42
    HDL cholesterol, 21, 41
    heart attacks and, 41, 42
    LDL cholesterol, 21, 42
    lowering, 10–11, 42, 45
    need for, 41
    ratios of, 42
    saturated fats and, 42
    stress and, 42
cis fats, 17, 74
coconut bananas, fried, 69
coconut oil, 15, 49–50
cold pressed oils, 30
*The Complete Book of Natural Foods*, (Rohé), 7
Connane, 72
cookies, sesame chocolate chip, 69
corn & kidney bean relish, 62
corn bread, 60
corn cakes, Cajun, 68
cost of fresh oils, 33
 crackers, sesame, 71
 croutons, 61

**D**
dairy products, 11, 14, 20, 40, 45
Davis, 72
Delta-6-Desaturase (D6D), 26
desserts, *See also* breads; recipes
applesauce pan cake, 63
 fried coconut bananas, 69
 sesame chocolate chip cookies, 69
 wheat germ blondies, 68
Diamond, M.D., John, 9, 35
dietary guidelines, *35–45, See also* recipes
for animal fats, 15, 20, 40, 45
 avoiding hydrogenated fats, 15
 for dairy products, 11, 20, 40, 45
 eating fresh vegetable oils, 30–31, 34, 49–51
 eating organic foods, 12
 eating raw fats, 11
EFA supplementation
 25% fat diet plan and, 40
 for adults, 12
 balancing ratios of, 35, 37–39, 74
 building reserves of, 36–37
 buying supplements, 46–47
 for children, 12, 39
 metabolism and, 35, 37–38, 43
 overview of, 35, 39
 personal factors in, 35, 37–39
 improving fat quality, 20, 40, 45
 losing weight, 43–44
 lowering cholesterol, 42, 45
 Mediterranean Diet, 16
 for mothers and children, 12
 no-fat/low-fat diet myths, 9, 40–41
 for prostaglandin deficiency, 26
 reducing saturated fats, 20, 40, 42, 45
EAT FAT: YOUR LIFE DEPENDS ON IT

digestive process of fats, 21–25, 38
distorted polyunsaturated fats, 16–19
Dorfman, M.D., Andrew, 27
double bonds, 74
Dr. Kelley’s Answer to Cancer, (Rohé), 7
drinks, See also recipes
  Optimal Drink, 52
  Power Boost smoothie, 52
  seed enzyme milk, 59
  strawberry banana shake, 52

E
e-mail addresses. See website addresses
Eckhart, M.S., D.C., Harvey, 13
EFAs (essential fatty acids), 9–19, 21–26, 35–44, See also fats; fatty acids; fresh vegetable oils
  Attention Deficit Disorder and, 39
  balancing, 35, 37–39, 74
  best sources for, 12
  body’s uses for, 10, 21–25
  books on, 72
  brain and, 10, 12, 37, 39
  cell structure and, 16–17, 21–22
  defined, 6, 10, 74
  distorted into “bad” fats, 16–19
  effects of deficiency in, 6, 9, 11
  in hemp oil, 38, 51, 75
  infant/child need for, 12, 39
  losing weight with, 43–44
  metabolic pathways of, 22–25
  molecular activity level of, 15
  in mother’s milk, 12
  no-fat/low-fat diets and, 9, 40–41
  omega-3 EFAs, See also flax oil
    balancing with omega-6, 37–39
    best sources of, 12, 36, 73
    body’s uses for, 10
    borage oil and, 37
    building reserves of, 35–37
    conditions helped by, 11, 36
    D6D enzyme and, 26
    defined, 74, 76
    effects of excess, 36
    in fish oil, 36, 74
    flax meal and, 36
    in flax oil, 36–37, 73
    in fresh vegetable oils, 73
    metabolic pathways of, 22, 24–25
temperature and, 15
omega-6 EFA
  balancing with omega-3, 37–39
  best sources of, 12, 73
  body’s uses for, 10
  conditions helped by, 10
  D6D enzyme and, 26
  defined, 75, 76
  in fresh vegetable oils, 73
  lauric acid and, 50
  metabolic pathways of, 22–23, 25
overview of, 6, 11
prostaglandins and, 22, 25–26
ratios of
  1:1 ratios, 37
  1:3.5 ratios, 36, 38
  2:1 ratios, 38, 39
  3:1 ratios, 38, 39
  in body, 37
versus “sticky” fats, 15
supplementation programs
  25% fat diet plan and, 40
  for adults, 12
  balancing ratios of, 35, 37–39, 74
  building reserves of, 36–37
  buying supplements, 46–47
  for children, 12, 39
  metabolism and, 35, 37–38, 43
  overview of, 35, 39
  personal factors in, 35, 37–39
therapeutic uses for, 10–11, 36, 43–44
triglycerides and, 38
eicosanoids, 22–25
energy fats. See saturated fats
Enig, Ph.D., Mary, 17–18
enzyme milk, seed, 59
enzymes, 27
Erasmus, Ph.D., Udo, 19, 28, 43, 72, 75
Essential Balance oil blend, 37, 39
Essential Balance Jr. oil blend, 39
Essential Fatty Acids in Health & Disease (Siguel), 9, 11, 16, 37, 72
evening primrose oil, 37
expeller pressed oils, 28–31, 34, 48, 49

F
The Facts About Fats, (Finnegan), 5, 8, 19, 31, 43, 72
Fat Facts: Trans Fats and Saturated Fats Are Not the Same, 18
fats, *See also* EFAs; fatty acids; oils

“bad” fats
- air as cause of, 19
- cholesterol and, 41–42
- due to excess, 15, 16, 18–19, 42
- expeller pressed oils, 30–31
- foods containing, 15, 20, 40, 45
- versus “good” fats, 15–20
- heat as cause of, 19, 27, 30
- hydrogenated fats, 15, 17, 75
- light as cause of, 19, 27–28
- linseed oil, 44–45
- oxidized fats, 14, 19, 28, 76
- partially hydrogenated fats, 15, 17, 76
- polyunsaturated fats as, 16–19
- pressure as cause of, 19, 30
- rancid fats, 14, 19, 36, 44, 77
- saturated fats as, 15, 42
- solvent extracted oils, 30–31
- trans fatty acids, 16–19, 26, 77

body’s uses for, 11–12, 13, 21
books on, 72
in cell structure, 16–17, 21–22

cholesterol
- in cell membranes, 22
- defined, 41
- excess cholesterol, 42
- HDL cholesterol, 21, 41
- heart attacks and, 41, 42
- LDL cholesterol, 21, 42
- lowering, 10–11, 42, 45
- need for, 41
- ratios of, 42
- saturated fats and, 42
- stress and, 42

cis fats, 17, 74
defined, 74
digestive process of, 21–25, 38

“good” fats, *See also* EFAs; fresh vegetable oils
- versus “bad” fats, 15–20
- foods containing, 11, 20, 40, 45
- forces that destroy, 19
- polyunsaturated fats as, 16
- raw fats, 11
- saturated fats as, 11, 15, 18
improving quality of, 20
“lipohysteria” or fear of, 40–41
monounsaturated fats
   cooking with, 51
defined, 14–15, 16, 76
EFAs and, 16
in fresh vegetable oils, 73
omega-9 oleic acid, 18, 73, 76
polyunsaturated fats, See also omega-6 EFA
cell structure and, 16–17
cooking with, 51
defined, 14–15, 76
distorted into “bad” fats, 16–19
excess use of, 18–19
good forms of, 16
saturated fats
   animal fats, 14, 15, 20, 40, 45
   in cell membranes, 22
   cholesterol and, 22, 42
   coconut oil, 15, 49–50
cooking with, 51
defined, 14–15, 77
eating in raw form, 11
in fresh vegetable oils, 73
“good” versus “bad” forms of, 15
hydrogenated fats, 15
made by the body, 50
partially hydrogenated fats, 15
prostaglandins and, 50
reducing use of, 20, 40, 42, 45
as “sticky” fats, 14, 15
versus trans fatty acids, 17–18, 50
triglyceride chains in, 15
superpolyunsaturated fats, See also flax oil; omega-3 EFAs
cooking with, 51
defined, 14–15, 16, 76
distorted into “bad” fats, 16–19
Fats That Heal, Fats That Kill (Erasmus), 19, 43, 72
fatty acids, 13–19, See also EFAs; fats; oils
defined, 74
digestive process of, 21–25, 38
fatty acid profiles, 73, 74
fluidity of, 14, 15
molecular structure of, 13–14
phosphatides and, 21, 22
stability of, 14
temperature and, 14–15
trans fatty acids
defined, 16, 26
negative effects of, 16–19
versus saturated fat, 17–18, 50
weight gain and, 17

categories and
defined, 14, 38
digestive process of, 21, 22, 38
EFAs and, 38
fat categories in, 14–15
long chain triglycerides, 15, 75
medium chain triglycerides, 15, 49–50, 75
molecular structure of, 13–14
short chain triglycerides, 15
unsaturated fatty acids, 77

Flax, Clara, 72
“The Felix Letter,” 72
finding fresh vegetable oils, 46–47
Finnegan, John, 5, 8, 19, 28, 31, 43, 72
fish oil, 36, 74
flavor of fresh oils, 32, 36, 49
flax oil, See also fresh vegetable oils; omega-3 EFAs; superpolyunsaturated fats
adding borage oil to, 37
adding flax meal to, 36
conditions helped by, 36
cooking with, 51
defined, 44, 75
EFA ratio in, 36, 73
effects of excess, 36
fatty acid profile for, 73
versus fish oil, 36
flavor of, 36
high-lignan flax oil, 36, 51
linseed oil and, 44–45
losing weight with, 43–44
lowering cholesterol with, 42
Omega Nutrition and, 43
rancid, smell of, 36
in salad dressings, 54
as source of omega-3, 12, 36
spinoffs or blends of, 36–37
temperature and, 15
winterizing, 36

Flaxseed in Human Nutrition (Connane & Thompson), 72
Flora, Inc, 47
fluidity of fatty acids, 14, 15
free radicals, 19, 28, 75
fresh vegetable oils, 27–34, 43–51, See also EFAs; oils; recipes
advantages of, 34
aroma of, 32, 49
books on, 72
borage oil, 37
bottling without light or air, 27–28
buying, 46–47
canola oil, 18, 49, 51
cold pressed oils and, 30
cooking with, 49–51
cost of, 33
defined, 28, 32
versus expeller pressed oils, 28–31, 34, 48, 49
fatty acid profiles for, 73
flavor of, 32, 36, 49
flax oil, See also omega-3 EFAs
adding borage oil to, 37
adding flax meal to, 36
conditions helped by, 36
cooking with, 51
defined, 44, 75
EFA ratio in, 36, 73
effects of excess, 36
fatty acid profile for, 73
versus fish oil, 36
flavor of, 36
high-lignan flax oil, 36, 51
linseed oil and, 44–45
losing weight with, 43–44
lowering cholesterol with, 42
Omega Nutrition and, 43
rancid, smell of, 36
in salad dressings, 54
as source of omega-3, 12, 36
spinoffs or blends of, 36–37
temperature and, 15
winterizing, 36
influencing market for, 48
monounsaturated fats in, 73
versus natural food store oils, 28–34, 48
omega-3/omega-6 EFAs in, 73
processing
at low temperatures, 27, 30, 32, 34
using modified atmosphere pressing, 27, 28, 30, 32–33
old versus new methods of, 32–33
without light or air, 27–28, 30–31, 33
pumpkinseed oil, 51, 73
safflower oil, 49, 73
saturated fats in, 73
sesame oil, 49, 73
versus solvent extracted oils, 29–32, 34, 48, 49
soy oil, 49, 51, 73
sunflower oil, 12, 49, 73
fruit muffins, 60, 70

G
gaining weight, 17
gamma-linolenic acid (GLA), 23, 37, 75
garlic mayonnaise, 56
Gates, Donna, 54–55
German “oil beaters,” 32–33
ginger flax salad dressing, 54
gingered asparagus, 62
Gittleman, Ann Louise, 40
glossary, 74–77
glycerol molecules, 13–14, 21
“good” fats, See also EFAs; fats; fresh vegetable oils
versus “bad” fats, 15–20
foods containing, 11, 20, 40, 45
forces that destroy, 19
polyunsaturated fats as, 16
raw fats, 11
saturated fats as, 11, 15, 18
Green Goddess salad dressing, 55
gross forces, 19, 75

H
Harrison, 72
Hawken, Paul, 7
HDL (high density lipoprotein) cholesterol, 21, 41
HDP (high density polyethylene) packaging, 28
Health from the Sun company, 47
The Healthy Living Cookbook (Gates), 54–55
heart attacks, cholesterol and, 41, 42
heat as cause of “bad” fats, 19, 27, 30, See also recipes; temperatures
hemp oil, 38, 51, 75
high-lignan flax oil, 36, 51
Huntley, Ph.D., Elizabeth, 29, 49, 55, 63
hydrogenated fats, 15, 17, 75

I
infants’ needs for EFAs, 12, 39
isomers, 16, 51, See also trans fatty acids

J
Japanese soba salad, 67
LA (linoleic acid), 23, 75, See also omega-6 EFA
Laurel’s Kitchen, 65
lauric acid, 50
LDLs (low density lipoproteins), 21, 42
lemon and cilantro flax oil dressing, 54
leukotrienes, 22, 25
light as cause of “bad” fats, 19, 27–28
light-free processing and bottling, 27–28, 30, 33
lignans, 36
linseed oil, 44–45
lipids. See fats; oils
“lipohysteria,” 40–41
LNA (alpha-linolenic acid), 24, 74, See also omega-3 EFAs
long chain triglycerides, 15, 75
losing weight, 43–44
low density lipoproteins (LDLs), 21, 42
low fat diets, 9, 40–41, See also dietary guidelines
low impact pressing. See MAP
low temperature processing, 27, 30, 32, 34
lowering cholesterol, 10–11, 42, 45
lowering saturated fat intake, 20, 40, 42, 45
lymph system, 21

M
MAP (modified atmosphere pressing), 27, 30, 32–33
MAPP (modified atmosphere pressing and packaging), 28
margarine, 15, 17
marijuana, 38
mayonnaise recipes, 56
meat fats, 14, 15, 20, 40, 45
Mediterranean Diet, 16
medium chain triglycerides (MCTs), 15, 49–50, 75
Mehlmauer, N.D., H.P., Leonard, 9
Melina, 72
metabolic pathways of EFAs, 22–25
metabolism, EFA requirements and, 35, 37–38, 43
milk
    cow’s milk, 11, 20, 40, 45
    mother’s milk, 12, 50
    seed milk, 59
Miller, M.D., Philip, 35
molecular activity level of fatty acids, 14–15
molecular structure of fatty acids, 13–14
monounsaturated fats (MUFAs), See also fats
    cooking with, 51
    defined, 14–15, 16, 76
EFAs and, 16
in fresh vegetable oils, 73
omega-9 oleic acid, 18, 73, 76
mother’s milk, 12, 50
muffins, See also breads; recipes
blueberry muffins, 60
tropical fruit muffins, 70

N
natural food store oils, 28–34, 48
neutral fats. See monounsaturated fats
no-fat diets, 9, 40–41, See also dietary guidelines
noodle salad, soba, 67
Nourishment (Mehlmauer), 9
nutrition. See dietary guidelines
nutritional science, 41

O
“oil beaters”, German, 32–33
oils, See also fresh vegetable oils
cold pressed oils, 30
defined, 76
evening primrose oil, 37
expeller pressed oils, 28–31, 34, 48, 49
hemp oil, 38, 51, 75
high-temp cooking oil, 50
linseed oil, 44–45
in natural food stores, 28–34, 48
olive oil, 50
solvent extracted oils, 29–32, 34, 48, 49
oleic acid, 18, 73, 76
omega, 76
The Omega Diet (Simopoulos), 17, 46
Omega Nutrition
Essential Balance product, 37, 39
Essential Balance Jr. product, 39
flax oil products, 36–37
omegaflo technology, 27, 46
ordering products from, 47
overview of, 46–47
Veg-Omega-3 product, 43
omega-3 EFAs, See also EFAs; flax oil; superpolyunsaturated fats
balancing with omega-6, 37–39
best sources of, 12, 36, 73
body’s uses for, 10
borage oil and, 37
building reserves of, 35–37
conditions helped by, 11, 36
D6D enzyme and, 26
defined, 74, 76
effects of excess, 36
in fish oil, 36, 74
flax meal and, 36
in flax oil, 36–37, 73
in fresh vegetable oils, 73
metabolic pathways of, 22, 24–25
temperature and, 15

The Omega-3 Phenomenon (Rudin & Felix), 72
omega-6 EFA, See also EFAs
  balancing with omega-3s, 37–39
  best sources of, 12, 73
  body’s uses for, 10
  conditions helped by, 10
  D6D enzyme and, 26
defined, 75, 76
  in fresh vegetable oils, 73
  lauric acid and, 50
  metabolic pathways of, 22–23, 25
omega-9 oleic acid, 18, 73, 76
omegaflo technology, 27, 46
opaque plastic bottling, 27–28
“Optimal Drink,” 44, 52
Organic Merchants, 7
organically grown foods, 12
oxidation of fats, 14, 19, 28, 76

P
packaging fresh vegetable oils, 27–28, 30, 33
pancake recipes, 63
partially hydrogenated fats, 15, 17, 76
pea soup, 65
PGs. See prostaglandins
phone numbers for EFA supplements, 47
phosphates, 21, 22
phosphatides, 21, 22
photon decay, 19, 28, 76
plastic bottling, opaque, 27–28
“plastic foods,” 15, 75
polyunsaturated fats (PUFAs), See also EFAs; fats; fresh vegetable oils
cell structure and, 16–17
cooking with, 51
defined, 14–15, 76
distorted into “bad” fats, 16–19
excess use of, 18–19

good forms of, 16

pressure as cause of “bad” fats, 19, 30

Price-Pottenger Nutrition Foundation, 18, 50

Pritikin, Nathan, 40

processing fresh vegetable oils
  at low temperatures, 27, 30, 32, 34
  using modified atmosphere pressing, 27, 28, 30, 32–33
  old versus new methods of, 32–33
  without light or air, 27–28, 30–31, 33

prostaglandins (PGs)
  body’s uses for, 25
  causes of deficiency, 26
  defined, 77
  overview of, 22, 25, 37
  saturated fats and, 50
  symptoms of deficiency, 26

pumpkinseed oil, 51, 73

R

rancidity
  defined, 14, 19, 77
  of flax oil, 36
  of linseed oil, 44
  versus photon decay, 28

recipes, 52–71
  cold preparation recipes
    black bean salad, 57
    cole slaw, 57
    defined, 51
    hummus, 58
    mayonnaise, 56
    Optimal Drink, 52
    salad dressings, 53–55
    salsa, 56
    seed milk, 59
    shakes/smoothies, 52
    tofu tuna salad, 58
  high heat recipes
    baba ganouj, 66
    baked marinated tofu, 66
    Cajun corn cakes, 68
    coconut rice, 70
    defined, 51
    fried coconut bananas, 69
    fruit muffins, 70
    sesame chocolate chip cookies, 69
EAT FAT: YOUR LIFE DEPENDS ON IT

sesame crackers, 71
soba noodle salad, 67
wheat germ blondies, 68

low heat recipes
blueberry muffins, 60
corn bread, 60
defined, 51

medium heat recipes
applesauce pancake, 63
buckwheat pancakes, 63
Chinese sauce, 64
corn & kidney bean relish, 62
croutons, 61
defined, 51
gingered asparagus, 62
pea soup, 65
vegetable bisque, 61
vegetable curry, 64

recommended daily quantities of EFAs, 12, 39
Recovery From Addiction, (Finnegan), 5
reducing cholesterol, 10–11, 42, 45
reducing saturated fat intake, 20, 40, 42, 45
reducing weight, 43–44
Reyes, N.D., Ph.D., Alejandro, 35
rice, coconut, 70
Rohé Natural Products company, 46, 47
Rudin, M.D., Donald, 72

S
safflower oil, 49, 73
salads, See also recipes
black bean salad, 57
cole slaw, 57
dressings for, 53–56
soba noodle salad, 67
tofu tuna salad, 58

saturated fats, See also fats
animal fats, 14, 15, 20, 40, 45
cholesterol and, 42
coconut oil, 15, 49–50
cooking with, 51
defined, 14–15, 77
eating in raw form, 11
in fresh vegetable oils, 73
good versus bad forms of, 15
hydrogenated fats, 15
made by the body, 50
partially hydrogenated fats, 15
prostaglandins and, 50
reducing use of, 20, 40, 42, 45
as "sticky" fats, 14, 15
versus trans fatty acids, 17–18, 50
triglyceride chains in, 15
sauce recipe, Chinese, 64
seed dressing, 53
seed enzyme milk, 59
sesame chocolate chip cookies, 69
sesame oil, 49, 73
sesamol, 49
short chain triglycerides, 15
Siguel, M.D., Ph.D., Edward, 9, 11, 16, 37, 72
Simopoulos, M.D., Artemis, 17, 46
smell of fresh vegetable oils, 32, 49
smell of rancid flax oil, 36
soba noodle salad, 67
solvent extracted oils, 29–32, 34, 48, 49
solvents, 27
soups, See also recipes
   pea soup, 65
   vegetable bisque, 61
soy oil, 49, 51, 73
Spectrum Naturals company, 43, 47
spinoff flax oils, 36–37
stability of fatty acids, 14
“sticky” fats, 15
strawberry banana shake, 52
stress, cholesterol and, 42
structural fats. See polyunsaturated fats
subtle forces, 19, 75
“The Sugar Story” pamphlet, (Rohé), 7
The Sunburst Farm Family Cookbook, 53, 63, 64
sunflower oil, 12, 49, 73
superpolyunsaturated fats, See also fats; flax oil; omega-3 EFAs
   cooking with, 51
   defined, 14–15, 16, 76
   distorted into “bad” fats, 16–19
supplementation programs, EFA, See also dietary guidelines; EFAs
   25% fat diet plan and, 40
   for adults, 12
   balancing ratios of, 35, 37–39, 74
   building reserves of, 36–37
   buying supplements, 46–47
   for children, 12, 39
   metabolism and, 35, 37–38, 43
overview of, 35, 39  
personal factors in, 35, 37–39

T

taste of fresh vegetable oils, 32, 49  
television numbers for EFA supplements, 47  
temperatures, See also recipes  
  fatty acids and, 14–15  
  heat as cause of “bad” fats, 19, 27, 30  
  high, oil processing at, 27, 30–31  
  low, oil processing at, 27, 30, 32, 34  
therapeutic uses for EFAs, 10–11, 36, 43–44  
Thompson, 72  
thromboxanes, 22, 25  
tofu recipes, See also bean recipes; recipes  
  baked marinated tofu, 66  
  tofu mayonnaise, 56  
  tofu tuna salad, 58  
tomato-cucumber salsa, 56  
trans fatty acids (TFAs), See also fatty acids  
  defined, 16, 26, 77  
  negative effects of, 16–19  
  versus saturated fat, 17–18, 50  
  weight gain and, 17  
triglycerides, See also fatty acids  
  defined, 14, 38  
  digestive process of, 21–25, 38  
  EFAs and, 38  
  fat categories in, 14–15  
  long chain triglycerides, 15, 75  
  medium chain triglycerides, 15, 49–50, 75  
  molecular structure of, 13–14  
  short chain triglycerides, 15  
tuna salad, 58  
25% fat diet plan, 40

U

unsaturated fatty acids, 77  
unstable fats, 14

V

Veg-Omega-3 product, 43  
vegetable oils. See fresh vegetable oils; oils  
vegetable recipes, See also recipes; salads  
  baba ganouj, 66  
  Basque bisque, 61  
  gingered asparagus, 62
tomato-cucumber salsa, 56
vegetable curry, 64
“vegetable shortening,” 15
vegetables, organic, 12
vitamin C, 9
Vonderplanitz, Aajonus, 11, 52

W
We Want to Live (Vonderplanitz), 11
website addresses
   Barlean’s, 47
   Flora, Inc., 47
   Health from the Sun, 47
   Omega Nutrition, 47
   Price-Pottenger Nutrition Foundation, 18
   Spectrum Naturals, 47
weight
   gaining, 17
   losing, 43–44
“Well Being Journal,” 17
wheat germ blondies, 68
winterized flax oil, 36

Z
The Zen of Running, (Rohé), 7