

# HEALING AUTISM IN THE KITCHEN



## Healing with Healthy Nutrition

*Healing aspects of a healthy diet, with specific emphasis on oral motor difficulties in children with autism spectrum and developmental disorders.*

By Annette Cartaxo MD and Garima Jain ND

*The information in this book is presented to assist parents of children with special needs. This book is not intended to diagnose or treat any medical condition. Readers should use common sense in applying the information in this book and consult with their medical doctor if there are questions about whether specific foods or diets are appropriate for their child. Since each child is different, specific reactions to foods recommended in these diets cannot be accounted for; therefore, the use of caution is advised. The book is solely intended to share information based on the experience and research of the authors. Neither the author nor publisher will assume any liability for inappropriate use of the information in this book.*

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## **DEDICATION**

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### **Dr. Annette Cartaxo**

This book is dedicated to the core of my emotional life — my family, those closest to me who have always loved and supported me.

My parents, ***Richard and Antoinette Rossetti***

My husband, ***Kenneth Cartaxo***

My daughter, ***Danielle Cartaxo***

My son, ***Joseph Cartaxo***



### **Dr. Garima Jain**

This book is dedicated to my family and all the parents who go far above and beyond in helping their children achieve a fulfilling life.

My parents, ***D.K Jain & Saroj Rani Jain***

My husband, ***Vinod Jain***

My special dedication goes to my husband, whose enormous efforts have made this book come to reality.

My son, ***Harshil Jain***

He came to me as a blessing and taught me how to love unconditionally.

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## **ACKNOWLEDGMENT**

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This book has been a dream that was years in the making. Never before has such an intensive need to find answers to the Autism puzzle been apparent in our country and in the world. We wish to thank all the children and their parents who taught us so much; some who are our patients and some who are our own children. As we see the unique aspects of every individual who is diagnosed with Autistic Spectrum Disorder (ASD) and developmental delay, we also see the similarities that run as a common thread of this complex disorder. It must be realized that in helping treat those with ASD and developmental delay one must consider the natural laws of the function of the human body. It has been a great challenge to combine sound overall nutritional advice while paying close attention to addressing the unique problems and aspects of those with ASD and developmental delay.

We thank those researchers and clinicians who are brave enough to find answers for these individuals with complex and multifaceted developmental problems.

Special thanks to Hope Fernicola and the members of TeamHope Speech and Pediatric Center ([www.teamhope.com](http://www.teamhope.com)), whose input on the oral motor aspects of children with ASD and assistance in rating the recipes in terms of level of oral motor difficulty, is an invaluable portion of this book. We would like to acknowledge Maurice Johnson for the design and artwork of the cover of this book.

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## **PREFACE**

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***Healing Autism in the Kitchen*** is devoted to children with Autism Spectrum and other development disorders, as well as to children who are overfed, yet undernourished. This book is not a nutritional manual. Rather, it is a cookbook that focuses on how to nourish children, with a special focus on children with ASD. Food has healing power that can stabilize one both physically and mentally.

This book is written with the intention of making a person healthy. Diet is the key and not necessarily dietary supplements, which are not a replacement for a healthy diet. Eating whole foods is first and foremost where one should start as the basis of sound nutrition.

Everyone appreciates a great meal, and many of us would love to be able to prepare one. With busy lives and other family commitments, however, sometimes the ability to prepare a healthy meal eludes us. Cooking, for some parents who are cooking for children with special needs, is a complex process in itself. This book was written to create healthy meals for children with special needs a simple process. The recipes are easy, and once you understand the basics, you will be able to make many fabulous meals in a matter of minutes.

This book also provides the necessary tools and guidelines for parents, and introduces them to the fundamentals of cooking. Parents will learn how to shop for healthy foods, to identify and select healthy ingredients, to learn to read labels, and to identify (parallel) unhealthy hidden ingredients, all of which are steps towards a fabulous culinary experience. Parents will also learn how to increase their chances of success in the kitchen by selecting proper equipment and kitchen accessories, and by learning healthy tips on how to cook. Included are individualized recipes suited to children's specific needs.

All efforts have been taken to make preparation of the recipes easy and fun. The ingredients selected are nutritious and can easily be found in local supermarkets, health foods stores, or online. Each recipe includes an informative box with tips or other helpful information. This book will give you the background to step into your kitchen with confidence in the knowledge that you're truly equipped with all that you need to serve a nutritious meal to your child and entire family.



## INTRODUCTION

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Autism is one of the five pervasive development disorders (PDDs). Children with autism spectrum disorders (ASD) exhibit a broad range of behaviors and levels of severity. These are defined as severe deficits in social interactions, language, communication and play, with stereotypic and repetitive behaviors with a narrow range of interests. Children with autism spectrum disorder also have gross-motor, fine motor and oral motor problems, which impact their overall function and development.

**This book focuses on a healthy diet while addressing the feeding-related oral motor problems of children with ASD.** Feeding and speech problems can also result from sensitivity in and around the mouth. These problems are related to hyper (over) or hypo (under) reactions to sensory input. Many children with ASD demonstrate delayed, primitive and/or abnormal oral motor development that impacts their expressive language and eating development. We recommend that some children will need an oral motor skills evaluation by a licensed speech-language pathologist or a feeding specialist.

It is our observation that many children with ASD and other developmental disorders have a limited diet and prefer crunchy foods such as pretzels, crackers and cookies that are quick and easy to chew. They reject meats, most fruits and vegetables, and are usually messy eaters, often over-stuffing food into their mouths and frequently rejecting having their teeth brushed. They have difficulty accepting new foods and have an aversion to tactile input in the mouth.

Some of the problems parents face in feeding a wholesome diet to their children with ASD and other developmental disorders relate to their specific oral motor problems, which are commonly seen and observed. These include excessive food

loss while eating, mouthing inedible objects after the age of two, presence of immature oral reflexes, sensitivities to food textures and temperature, excessive drooling, and unintelligent speech after the age of three.

This book will help you simplify how to start and maintain a wholesome diet, with specific attention to the problems parents face with their children diagnosed with ASD and other developmental disorders. It focuses on biochemical issues, behavioral issues, and oral motor function.



## CHAPTER ONE

# Nutritional Wellness



**NUTRITIOUS FOODS ARE THE EASIEST WAY** to start your child on a wholesome diet and lifestyle. Most foods, especially “whole foods,” are those that have not been radically changed. They are in their natural state and contain a variety of nutrients, such as vitamins, minerals, carbohydrates, proteins and fats. Some foods have better quantity and quality of these components, and those that contain the highest are considered “nutrient dense” foods.

Everyone needs good food to obtain proper nutrition. For some individuals, especially some diagnosed with ASD, getting proper nutrition is difficult due to many obstacles inherent in their unique biochemistry and physiology. The easiest way to help these children is to offer them a choice of healthy foods to eat. Just taking vitamins and minerals in supplements is not enough. For example, often if a child is deficient in good fats the requirement for vitamins and minerals is increased. When adequate EFA nourishment is supplied in the diet, the need for vitamins and mineral quantities is diminished. As your child gets the essential components in a healthy diet, he or she gets healthier overall.

**New Nutritional Wellness Model:** It is our philosophy that if a child is healthy — really healthy — eats a truly good diet, and is not exposed to environmental toxins, then one may not need supplements. However, in our world today, one needs nutritional support along with diet to be healthy because we are exposed to toxins both in the environment and in foods, so our bodies are in a constant state of detoxification.

The New Wellness Model incorporates a nutrient dense diet with nutritional supplements. Positive attitude is the key and nature’s healthy foods are what we need to maintain our health.

# Nutrient and Nutrient-Dense Foods

As mentioned a **nutrient** is described as a substance contained in a food used by the body to promote growth, maintenance and repair of tissues, or simply a substance that provides nourishment.

## Nutrients are categorized into two groups

**Macro-nutrients:** These are present in our diets in large amounts, and make up the foundation of our diet and include:

- Carbohydrates
- Proteins
- Fats

**Micro-nutrients:** Found in various quantities in nutrient dense foods, micronutrients are essential to ensure that metabolism, growth and development, along with our cellular processes function properly. Even though their presence is in minute amounts, it should in no way diminish their importance to nutrition.

Most micro-nutrients are known to be essential nutrients — as they are indispensable to life processes as the body cannot manufacture them. In other words, micro-nutrients can only be obtained from the food in which we eat. Micronutrients:

- Vitamins
- Minerals



# Carbohydrates: Main Source of Energy

**Carbohydrates** are your body's main source of energy. Carbohydrates are actually built of sugar molecules, called saccharides. The body requires around 45 to 65 percent of total calories in the form of carbohydrates. However, these need to be nutrient dense carbohydrates found in fruits and vegetables, not donuts and candy. These saccharides are arranged together like beads on a necklace.

**Carbohydrates** include sugars, starches, and fiber. Both sugars and starches are broken down by the body into the simple sugar, glucose. Glucose molecules then circulate in the bloodstream, supplying cells with fuel on an as-needed basis. Extra glucose is converted into glycogen, which is stored in muscles and the liver. If the body is already storing enough glycogen, glucose gets changed into fat. Your body prefers to burn glucose or glycogen for energy, but when these reserves are depleted it draws on fat, the reserve fuel. Carbohydrates are an important part of the diet, since your body needs energy to grow, to work, and to repair itself.

**Effects of Carbohydrates on Children with ASD:** Foods high in refined carbohydrates, like white sugar and white flour, provide quick breakdown and easy assimilation of simple sugars that provide the energy to the cells with very little digestive work. Many children with developmental delay and ASD who eat this type of diet tend to snack all day. This is the case because carbohydrates are not digested in the stomach; they exit quickly, leaving an empty feeling that elicits a hunger response. As these carbohydrates leave the stomach, they make their way into the small intestine where they are quickly broken down into simple sugars that are released into the blood stream. This causes an increase in insulin which in turn causes a drop in blood sugar level as sugar now enters the cells to be used as energy. This low blood sugar will in turn elicit the drive to restore adequate levels by causing the individual to seek these foods again.

It has been observed by many parents that behavior in children with ASD is affected by this rise and fall in sugar levels. When sugar levels are rapidly increasing and decreasing it can cause hyperactivity, aggression, tantrums, self-stimulatory behaviors, and melt downs.

# Proteins and Amino Acids

**Proteins:** Proteins are large, complex molecules that play many critical roles in the body. They do most of the work in cells and are required for the structure, function, and regulation of the body's tissues and organs. Proteins are the building blocks of the body. The human body on average assembles about 50,000 different proteins to form organs, nerves, and muscles essential for growth and development. Proteins also provide the body with energy, and are needed in the manufacture of hormones, antibodies, enzymes, and tissues.

**Amino Acids:** When protein is consumed, it is broken down into its smallest components, amino acids, the building blocks of proteins. Humans can produce eleven of the twenty amino acids called “non-essential.” The others (the “essentials”) must be supplied in the foods we eat. Normally we obtain amino acids from our food sources, particularly those high in protein. The body breaks these proteins down into their constituent parts and our cells use these to build the specific types of protein each of them needs.

## Types of Amino Acids

**Essential Amino Acids:** These are called essential amino acids because the body cannot synthesize them; instead they have to be obtained by the diet. The nine essential amino acids are Histidine, Isoleucine, Leucine, Lysine, Methionine, Phenylalanine, Threonine, Tryptophan and Valine.

**Non-Essential Amino Acids:** These are called non-essential, not because they are not needed, but because they do not have to be obtained as part of one's diet. Instead the body makes non-essential amino acids from other amino acids already in the body. The eleven non-essential amino acids are Alanine, Arginine, Asparagine, Aspartic Acid, Cysteine, Glutamic Acid, Glutamine, Glycine and Proline.

Failure to obtain enough of even one of the nine essential amino acids results in degradation of the body's muscle proteins. Unlike fat and starch, the human body does not store excess amino acids for later use; they must be in the diet every day.

The National Academy of Sciences says people need to get 10 to 35 percent of their daily calories from protein. Lack of consumption of good protein is commonly found in children with ASD, as these children tend to eat less protein in their diets.

This may be due in part to a child's oral motor and sensitivity problems or pancreatic insufficiencies in the release of digestive enzymes, which could have been created by a low protein diet in the first place, since approximately half of the dietary protein consumed daily goes into making enzymes.

When protein is lacking in the diet, the brain and other organs cannot function or develop properly, and the child may have failure to thrive. **Poor diets which exclude protein foods, such as a, vegetarian diet, need to be monitored carefully to include wide range of complementary plant proteins such as seeds, nuts, legumes, and perhaps egg.**

**Common Symptoms of Protein Deficiency** include wasting and shrinkage of muscle tissue, edema (swelling, including the brain), anemia (the blood's inability to deliver sufficient oxygen to the cells), and diminished growth in children, neurotransmitter imbalances (which can lead to depression & behavior disorders) etc. may result.

**For children with ASD** the diet needs to be balanced with a variety of healthy foods in the form of proteins, complex carbohydrates, fats and essential fatty acids.

# Fats and Essential Fatty Acids

**Fats** are a concentrated form of energy available to the body just as carbohydrates are. Much attention has been focused on reducing dietary fat, but the body does need fats to function properly. It is the man-made fats — margarine and hydrogenated oil — that cause a health challenge. Fatty acids provide building blocks for cell membranes and a variety of hormones and hormone-like substances and make up 60% of the brain. Fats, as part of a healthy meal, slow down the digestive process, which prolongs the phase of nutrient absorption and give a feeling of fullness. This is crucial for children with ASD, as they need to snack frequently for biochemical stability.

**Trans Fats:** Children tend to eat poor quality foods which often contain “trans” fats found commonly in fast foods and commercial baked goods. Trans fats act as plastic deposited in the cell membranes, where they interrupt normal cell function. Margarine, hydrogenated vegetable oil, shortening and all foods containing trans fat must be avoided as much as possible.

**Unsaturated Essential Fatty Acids:** EFAs (Essential Fatty Acids) are specialized fats the body cannot manufacture. They make up the membrane barrier that surrounds every cells and intracellular organelles in our bodies. EFAs determine fluidity and chemical reactivity of membranes. They also regulate oxygen use, help form red blood pigment (hemoglobin), the immune system fight infections, prevent the development of allergies, and increase metabolic rate, and energy levels. EFAs also play a role in every life process in the body. *Life without EFAs is impossible.*

**Saturated Fatty Acids:** Are highly stable, can withstand high cooking temperatures, and do not go rancid at room temperature. These fats are solid or semi-solid at room temperature. They are found in animal fats and tropical oils. The body can also make them from carbohydrates. Saturated fat sources include meat fat, poultry fat and butter cream. Saturated fats have tremendous benefits to the body as supportive architecture for cell membranes and the formation of hormones.

## Unsaturated Fatty Acids:

**Monounsaturated Fatty Acids:** Tend to be liquid at room temperature, solid when cooled. They are relatively heat-stable, do not become rancid, and therefore can be used for cooking. The body can make monounsaturated fatty acids and uses them as energy. They are found in olive oil as well as in fats from almonds, cashews, pecans and avocados.

**Polyunsaturated Fatty Acids or PuFAs:** Highly reactive and become rancid easily, particularly omega-3 fatty acids. They are always in the liquid state, even when frozen. These fatty acids should never be heated or used generally in cooking, and should be handled with care. PuFAs are found in seeds, walnuts, egg yolk and cold water fish.

**Deficiency Symptoms of EFAs in Autism Spectrum Disorder:** EFA deficiency in children with developmental delay and autism may experience excessive thirst, frequent urination, asthma, depression, anxiety, dry skin/hair, hyperactivity, mood changes, learning difficulties, and problems with attention and focus. Many children have a very low intake of essential fatty acids. Omega-6 fatty acids and omega-3 fatty acids are equally important, but it is important to take these fats in the proper ratio. The ratio of omega-6 to omega-3 should be about 4:1. This means that we need four times as much omega-6 as omega-3.

### Signs and Symptoms in Children with ASD Where EFAs Can Help

- Dry, flaky skin
- Asthma
- Bedwetting
- Behavior difficulties
- Recurrent illness
- Dry, straw-like hair
- Excessive thirst
- Cognitive problems
- Dandruff
- Eczema

# Introduction to Vitamins

Vitamins are a group of nutrients found only in living things, plants and animals. Vitamins are divided into two classes based on their solubility:

- **The fat-soluble vitamins**, which include vitamin A, D, E, and K.
- **The water-soluble vitamins**, which include folate (folic acid), vitamin B12, biotin, vitamin B6, vitamin B3 (niacin), vitamin B1 (thiamin), vitamin B2 (riboflavin), vitamin B5 (pantothenic acid), and vitamin C (ascorbic acid).

Fat-soluble vitamins can be stored in appreciable amounts in the body, and so caution should be used not to overdose them. Water-soluble vitamins cannot be stored in the body; however, when water soluble vitamins are used for children with ASD (such as the B vitamins and vitamin C), it is important to consider that dosages should be individualized, as each child may react to the same dose differently.

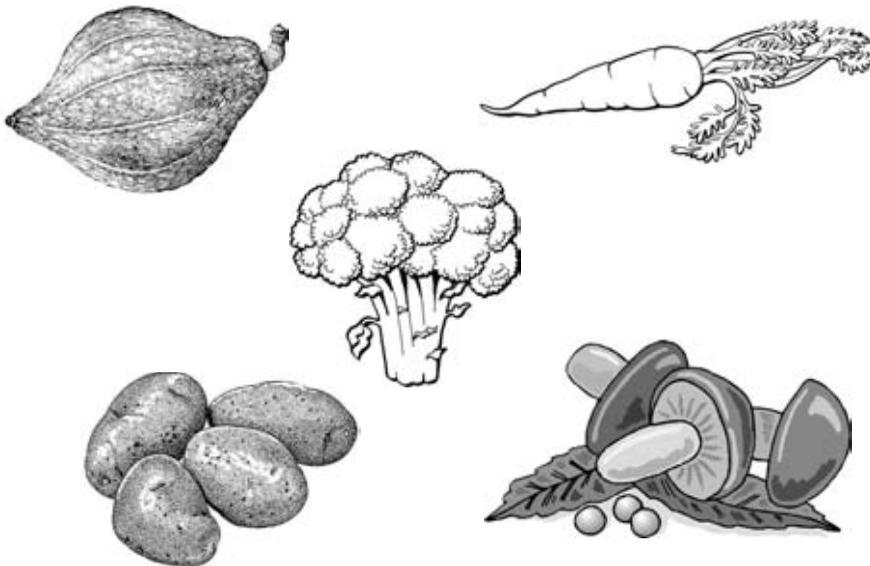
**Functions of Vitamins in the Human Body:** Vitamins are sometimes referred to as the “spark plugs” of our human machine. They promote normal growth, ensure good health, and protect against certain diseases. Vitamins are required by the body in small amounts to help regulate metabolism, to protect health, and for proper growth in children. They assist in the formation of hormones, blood cells, nervous-system chemicals, and genetic material. They are responsible for keeping cells & connective tissue strong, and fighting infections.

Vitamins also help convert fat and carbohydrates into energy, and assist in forming bone and tissues. Vitamins and minerals have no calories and are not an energy source, but they assist in making it possible for other nutrients to be digested, absorbed and metabolized by the body. Without vitamins our cells would not function properly and thus our organs would fail and eventually we would no longer be able to survive.

**Modern Methods and Vitamins’ Value in Food:** Fifty years ago, commercial farmers started using chemical fertilizers to grow the crops. Now, today’s methods of food handling, food processing, cooking on high heat, and oxidation are greatly impacting the nutritional contents of food. Deep-frying foods and long periods of high heat used in canning are destructive to some vitamins, but not all. Vitamin content in food varies enormously with farming methods too, as nitrogen fertilizers produce initial high yields, in part by pulling minerals from the soil. In time,

commercially fertilized soils become depleted, and foods grown on them suffer greatly. Many commercial foods contain vitamins, but if they also contain additives and sugar, the detrimental effects of these preservatives will do more harm than the vitamins can offset.

**Vitamins and Children with ASD:** Children with ASD can be deficient in many nutrients including vitamins and minerals, since they have absorption problems and a limited diet, which may not provide proper nutrition. It thus becomes important for children with ASD to have a good multivitamin and to eat a healthy diet with foods that are organically grown and in their whole state. Processed foods should be limited. For optimum health, the American Medical Association now encourages that a multivitamin accompanies a healthy diet.



## Fat Soluble Vitamins

Vitamin	Function	Common signs of Deficiency in ASD	Overdose Symptoms	Food Sources
<b>Vitamin A</b> (Retinol)	Strengthens mucous membranes, immune system, adrenal glands, and eyes Promotes skin health, hair, bones and teeth Anti-cancer for breast, bladder, cervical	Increased susceptibility to infections Poor appetite Dry and rough skin Hearing, taste, smell and nerve damage Night blindness, eye problems Impaired growth Reduced hair growth in children	Fatigue Diarrhea Dry, cracked Lips Rashes Headache Blurred or double vision Irregular menstrual periods Joint & bone pain Loss of hair Liver damage Birth defects Bone loss	Cod liver oil Crab Red pepper Dandelion Greens Carrot Nori Kale Parsley Spinach Swiss Chard Chives Watercress Broccoli Pumpkin Kombu Onion Cantaloupe Apricot <b>Other Sources:</b> Dark green leafy vegetables Yellow fruits & vegetables Vitamin A fortified milk Butter - summer Egg yolks
<b>Vitamin D</b> (Cholecalciferol)	Supports bone, tooth and muscle function Aids calcium, phosphorus, magnesium and zinc absorption Supports healthy function of thyroid gland Anti-cancer and anti-inflammatory properties	Rickets in children Bone softening in adults Osteoporosis Weak muscles Pain with brushing teeth	Nausea Vomiting Headaches Constipation Diarrhea Fatigue Appetite Loss Excessive Thirst and urination Protein in urine Liver and kidney damage	Cod liver oil Shiitake Mushroom Kippers Mackerel Sardines Tuna Cod Fish Liver Oil Fortified milk Butter Egg yolks

## Fat Soluble Vitamins

Vitamin	Function	Common signs of Deficiency in ASD	Overdose Symptoms	Food Sources
<b>Vitamin E</b> (Tocopherols) and (TocoTrienols)	<p>Antioxidant – (This property of this nutrient may be a factor in reducing the risk of certain forms of cancer.)</p> <p>Helps form red blood cells, muscles and other tissues;</p> <p>preserves fatty acids</p> <p>Anti-clotting properties; helps to keep blood platelets from sticking together</p>	<p>Anemia</p> <p>Edema</p> <p>Dry Skin</p> <p>Nerve abnormality</p> <p>Red blood cells fragility</p> <p>Weak muscles</p> <p>Impaired reflexes</p>	<p>Can cause stomach upset, diarrhea, and dizziness</p> <p>Nausea</p> <p>Overdose of Vitamin E can interfere with the body's ability to clot (especially dangerous if taking the blood thinning drugs Warfarin or Coumadin).</p>	<p>Wheat germ oil</p> <p>Corn oil</p> <p>Safflower oil</p> <p>Soybean oil</p> <p>Cod liver oil</p> <p>Sesame oil / Seeds</p> <p>Hazelnuts</p> <p>Pecans</p> <p>Sunflower oil / Seeds</p> <p>Kale</p> <p>Brazil nuts</p> <p>Turnip greens</p> <p>Spinach</p> <p>Peas</p> <p>Herring</p> <p>Millet</p> <p>Mackerel</p> <p>Brown rice</p> <p>Swiss chard</p> <p>Mangos</p> <p>Lettuce</p> <p>Apples</p> <p>Bananas</p> <p>Strawberries</p>
<b>Vitamin K</b>	<p>Allows your blood to clot normally</p> <p>Help protect against osteoporosis</p> <p>Prevents oxidative cell damage</p> <p>Helps in absorption of calcium, so contributes in forming bone cells</p>	<p>Excessive bruising and bleeding</p> <p>Digestive system problems, especially malabsorption</p> <p>Liver or gallbladder problems</p> <p>Defective blood coagulation</p>	<p>Generally non-toxic; elevated levels of vitamin K can interfere with the effects of anti-coagulants</p>	<p>Broccoli</p> <p>Brussels sprouts</p> <p>Cabbage</p> <p>Cauliflower</p> <p>Kale/Kombu (seaweeds)</p> <p>Spinach</p> <p>Soybeans</p> <p>Dark green vegetables</p>

## Water Soluble Vitamins

Vitamin	Function	Common signs of Deficiency in ASD	Overdose Symptoms	Food Sources
<b>Vitamin B1</b> (Thiamine)	<p>Key role in metabolism of carbohydrates, fat and protein</p> <p>Assists production of energy within the body</p> <p>Essential for normal function of muscles, heart and nervous system</p> <p>Stabilizes the appetite</p> <p>Promotes growth and good muscle tone</p>	<p>Vitamin B1 deficiency affects the functioning of gastrointestinal, cardiovascular, and peripheral nervous systems</p> <p>Anxiety</p> <p>Depression</p> <p>Hysteria</p> <p>Muscle weakness</p> <p>Nausea</p> <p>Vomiting</p> <p>Fatigue</p> <p>Memory loss</p> <p>Muscle cramps</p> <p>Loss of appetite</p> <p>Irritability</p> <p>Extreme cases causes beriberi, Edema, enlarged heart</p>	<p>Generally non-toxic alone, but excess of one B vitamin may cause deficiency of others</p>	<p>Brewer's Yeast</p> <p>Sunflower seeds</p> <p>Peanuts</p> <p>Chestnuts</p> <p>Brazil nuts</p> <p>Sesame seeds</p> <p>Soybeans</p> <p>Millet</p> <p>Aduki beans</p> <p>Rye</p> <p>Lentils</p> <p>Brown rice</p>
<b>Vitamin B2</b> (Riboflavin)	<p>Key role in metabolism of carbohydrates, fat and proteins</p> <p>Assists production of energy within the body</p> <p>Aids in the formation of antibodies and red blood cells</p> <p>Helps maintain good vision, skin, nails and hair</p> <p>Alleviates eye fatigue</p> <p>May prevent cataracts</p> <p>May help combat migraine</p> <p>Promotes general health</p>	<p>Cracks and sores around the mouth and nose</p> <p>Visual problems (red eyes, light sensitivity)</p> <p>Depression</p> <p>Dry skin and hair loss</p> <p>Insomnia</p> <p>Poor digestion</p> <p>Anemia</p> <p>Dizziness</p>	<p>Generally non-toxic alone, but excess of one B vitamin may cause deficiency of others</p>	<p>Brewer's Yeast</p> <p>Sunflower seeds</p> <p>Walnuts</p> <p>Salmon</p> <p>Rainbow trout</p> <p>Nori (seaweeds)</p> <p>Kelp/Kombu (seaweeds)</p> <p>Tempeh</p> <p>Soybeans</p> <p>Mackerel</p> <p>Buckwheat</p> <p>Brown rice</p> <p>Banana</p> <p>Beans</p> <p>Avocado</p> <p>Chestnuts</p> <p>Kale</p> <p>Spinach</p> <p>Brussels sprouts</p>

## Water Soluble Vitamins

Vitamin	Function	Common signs of Deficiency in ASD	Overdose Symptoms	Food Sources
<p><b>Vitamin B3</b> (Niacinamide)</p> <p><b>Niacin is converted to niacinamide in the body.</b></p>	<p>Needed in many enzymes that convert food to energy</p> <p>Helps maintain a healthy digestive tract and nervous system</p> <p>Involved in production of sex hormones; helps maintain healthy skin</p> <p>Improves circulation and reduces the cholesterol level in the blood</p>	<p>Fatigue</p> <p>Irritability</p> <p>Insomnia</p> <p>Emotional instability</p> <p>Blood sugar fluctuations</p> <p>In extreme cases, pellagra (disease characterized by dermatitis, diarrhea and mouth sores)</p>	<p>Flushing into niacin</p> <p>Nausea</p> <p>Vomiting</p> <p>Abdominal cramps</p> <p>Diarrhea</p> <p>Ulcers</p> <p>Severe overdose — liver disorders</p> <p>Gouty arthritis</p> <p>Irregular heart rate</p>	<p>Brewer's yeast</p> <p>Almonds</p> <p>Sunflower seeds</p> <p>Sesame seeds</p> <p>Mackerel</p> <p>Trout</p> <p>Salmon kelp</p> <p>Sardines</p> <p>Nori (seaweeds)</p> <p>Wakame (seaweeds)</p> <p>Brown rice</p> <p>Buckwheat</p> <p>Dried peas</p> <p>Green peas</p> <p>Tempeh</p> <p>Aduki beans</p> <p>Millet</p> <p>Soybeans</p> <p>Kale</p> <p>Parsley</p>
<p><b>Vitamin B5</b> (Pantothenic Acid)</p>	<p>Converts food to molecular forms; involved in the breakdown of carbohydrates, proteins and fats</p> <p>Supports normal growth and development</p> <p>Needed to manufacture adrenal and sex hormones chemicals that regulate nerve function</p> <p>Helps body use other vitamins</p> <p>Gene expression, RBC and neurotransmitter formation.</p>	<p>Nausea, vomiting</p> <p>Depression, anxiety</p> <p>Restlessness</p> <p>Eczema</p> <p>Palpitation</p> <p>Edema</p> <p>Allergy</p> <p>Insomnia</p> <p>Hives</p> <p>Burning feet</p> <p>Irritable bowel</p> <p>Adrenal fatigue</p> <p>Loss of hair pigment</p> <p>Growth retardation</p>	<p>Generally non-toxic alone, but excess of one B vitamin may cause deficiency of others</p>	<p>Brewer's yeast</p> <p>Almonds</p> <p>Chestnuts</p> <p>Cashews</p> <p>Walnuts</p> <p>Sunflower seeds</p> <p>Dates</p> <p>Blackcurrants</p> <p>Lobster</p> <p>Salmon</p> <p>Trout</p> <p>Mushrooms</p> <p>Cabbage</p> <p>Avocado</p> <p>Cauliflower</p> <p>Kale; Parsley</p> <p>Peas; Parsnips</p> <p>Corn (cooked)</p> <p>Squash</p> <p>Pinto beans</p> <p>Black-eyed beans</p> <p>Brown rice</p>

## Water Soluble Vitamins

Vitamin	Function	Common signs of Deficiency in ASD	Overdose Symptoms	Food Sources
<b>Vitamin B6</b> (Pyridoxine)	Key role in metabolism of carbohydrates, fat and protein  Assists production of energy within the body  Aids in the formation of antibodies  Maintains health of the central nervous system  Aids removal of excess fluid in premenstrual women and reduces muscle spasms and cramps  Promotes healthy skin  Reduces hand numbness and stiffness  Helps maintain balance of sodium and phosphorous	Seizures Headaches Nausea Vomiting Dry, flaky and scaly skin Irritability Cracks on mouth Sore tongue Anemia	Problems with sense of position and vibration; reduced tendon reflexes; numbness in hands and feet; problems walking; problems with memory; depression, headache and tiredness  Imbalances in nervous system activity have been shown to result from high levels of supplemental vitamin B6 intake. <i>(These imbalances do not seem to occur until supplementation exceeds one gram per day.)</i>	Brewer's yeast Sunflower seeds Walnuts Chestnuts Salmon Rainbow trout Mackerel Nori (seaweeds) Kelp/Kombu (seaweeds) Tempeh Soybeans Pinto beans Buckwheat Brown rice Pearled barley Avocado Kale Spinach Brussels sprouts Lima beans Bananas
<b>Vitamin B12</b> (Cobalamin)	Plays key role in metabolism of carbohydrates, fat and protein, assisting in production of energy within the body; helps formation and regeneration of red blood cells, thus helping prevent anemia; maintains a healthy nervous system; promotes growth in children; needed for calcium absorption; improves memory;  Helps body use folic acid, and supports healthy functioning of nervous system.	Irritability Memory loss Constipation Tactile hyper sensitivity Megaloblastic anemia Loss of coordination Development delays; slow growth	Generally non-toxic; (be careful when supplementing vitamin B12 with other B vitamins)	Beef liver Oysters Crab Herring Mackerel Haddock Salmon Tempeh Kelp/Kombu (seaweeds) Nori (seaweeds) Hiziki Gruyer cheese Low fat milk Eggs Yogurt

## Water Soluble Vitamins

Vitamin	Function	Common signs of Deficiency in ASD	Overdose Symptoms	Food Sources
<b>Biotin</b>	<p>Involved in metabolism of fatty acids, carbohydrates, and protein</p> <p>Involved in maintaining health of skin, hair, sweat glands, nerves and bone marrow</p> <p>Essential for proper body chemistry</p> <p>Aids utilization of protein, folic acid, Pantothenic acid, and vitamin B12</p>	<p>Nausea, vomiting</p> <p>Dry scaly skin</p> <p>Seborrhc dermatitis in infants (rare in adults, but can be induced by consuming large amounts of egg whites)</p> <p>Anorexia</p> <p>High cholesterol</p> <p>Muscle cramps</p> <p>Cracks in the corner of the mouth</p>	<p>Biotin supplements are rarely seen on their own, and biotin is usually included instead as part of a quality B-complex multivitamin.</p> <p>Biotin combines well with other B-vitamins, especially vitamin B5 and vitamin B9. The recommended daily intake of biotin is 300 mcg.</p>	<p>Chard</p> <p>Tomatoes</p> <p>Romaine lettuce</p> <p>Carrots</p> <p>Onions</p> <p>Cabbage</p> <p>Cucumber</p> <p>Cauliflower</p> <p>Almonds</p> <p>Walnuts</p> <p>Eggs</p> <p>Goat's milk</p> <p>Raspberries</p> <p>Strawberries</p> <p>Halibut</p>
<b>Folic Acid</b> (Folinic Acid)	<p>Essential for the manufacture of genetic material as well as protein metabolism and red blood cell formation</p> <p>Supports hair and skin health</p> <p>Involved in growth, development and reproduction</p> <p>Supports healthy functioning of nervous system, brain development, RNA, DNA, Hemoglobin</p> <p>Methionine metabolism;</p> <p>Amino acid and neurotransmitter production</p>	<p>Diarrhea</p> <p>Digestive problems</p> <p>Fatigue</p> <p>Sleep problems</p> <p>Irritability</p> <p>Weakness</p> <p>Pallor</p> <p>Anemia</p> <p>Mental retardation</p> <p>Neural tube defects</p> <p>Homocysteinemia</p> <p>Low WBC (White Blood Cells)</p> <p>Neuropathy</p> <p>Gingivitis</p> <p>Glossitis</p>	<p>Kidney damage, abdominal bloating / distention</p> <p>Nausea</p> <p>Loss of appetite</p> <p>Increased cholesterol LDL / HDL ratio</p> <p>Increased zinc and potassium requirements may mask pernicious anemia from Vitamin B12 deficiency</p>	<p>Liver</p> <p>Fenugreek</p> <p>Chick peas</p> <p>Pinto beans</p> <p>Spinach</p> <p>Parsley</p> <p>Soybeans</p> <p>Black-eyed beans</p> <p>Brussels sprouts</p> <p>Broccoli</p> <p>Cauliflower</p> <p>Watercress</p> <p>Avocado</p> <p>Hiziki (seaweeds)</p> <p>Brown rice</p> <p>Nori (seaweeds)</p> <p>Dates</p> <p>Pears</p> <p>Oranges</p> <p>Pumpkin seeds</p> <p>Almonds</p> <p>Hazelnuts</p>

## Water Soluble Vitamins

Vitamin	Function	Common signs of Deficiency in ASD	Overdose Symptoms	Food Sources
<b>Vitamin C</b> (Ascorbic Acid)	Antioxidant; helps bind cells together and strengthens blood vessel walls  Aids in absorption of iron from GI tract  Helps maintain normal enzyme function  Important for healthy growth of teeth, bones, gums, ligaments, and blood vessels  Involved in production of neurotransmitters and adrenal gland hormones  Plays an important role in immune response to infections and in supporting wound healing	Muscle weakness Infections Allergies Depression Anxiety Immune dysfunction Slow wound healing Recurrent bleeding gums Easy bruising In extreme cases: scurvy, cataracts, periodontitis	Diarrhea symptoms, which go away once supplement is stopped	Cherry Strawberries Guava Orange Blackcurrant Red pepper Kale Parsley Turnip tops Broccoli Brussels sprouts Watercress Cauliflower Lotus root Chives Spinach Cabbage Onions Bean sprouts

# Introduction to Minerals

**Minerals** are naturally occurring elements found in earth. They are equally important for the body as vitamins. Vitamins cannot be assimilated without the aid of minerals. Although the body can manufacture a few vitamins, it cannot manufacture a single mineral. All tissues and internal fluids contain varying quantities of minerals. Minerals are constituents of the bones, teeth, soft tissue, muscle, blood, and nerve cells. They are vital to overall mental and physical well-being.

**Function of Minerals:** Minerals act as catalysts for many biological reactions within the body. The regulation of mineral balance in the body is essential for survival. **Minerals have two general functions — building and regulating.** Their building functions affect your bones, teeth, and all soft tissues. Their regulating functions include a wide variety of systems, such as the beating of your heart, the clotting of your blood, maintaining nerve responses, and transporting oxygen from your lungs to the tissues.

## Minerals belong to two-groups:

### Macrominerals

- a) Calcium
- b) Magnesium
- c) Sodium
- d) Potassium
- e) Phosphorus
- f) Sulfur
- g) Chloride

### Microminerals or Trace Minerals

- a) Boron
- b) Chromium
- c) Copper
- d) Germanium
- e) Iodine
- f) Iron
- g) Manganese
- h) Molybdenum
- i) Selenium
- j) Zinc

**Minerals and Children with ASD:** Symptoms of mineral deficiency common in ASD children include:

- **Zinc:** Acne, apathy, brittle nails, delayed sexual maturity, depression, diarrhea, eczema, fatigue, growth impairment, hair loss, immune impairment, irritability, lethargy, loss of appetite, loss of sense of taste, low stomach acid, memory impairment, night blindness, paranoia, white spots on nails, poor wound healing.
- **Magnesium:** Anxiety, confusion, cardiac problems, hyperactivity, insomnia, nervousness, muscular irritability, restlessness, weakness.
- **Calcium:** Eye pain, brittle nails, cramps, delusions, depression, insomnia, irritability, osteoporosis, palpitations, periodontal disease, tooth decay.

***Points to Remember:***

- Calcium competes with other minerals for absorption.
- There is a direct relationship in the body with zinc and copper ratio. Many children with ASD have high copper and low zinc levels. Eating foods that are rich in zinc and even zinc supplementation can be helpful. Zinc should always be taken with a balance of all trace minerals.
- Calcium needs magnesium and vitamin D for optimal absorption.
- Calcium carbonate is the least absorbable (citrate/chelate/glycinate forms are preferred).
- Zinc should be given separately from calcium.

The following tables will help you understand the function of minerals in the body, signs of deficiency, overdose symptoms, and in which foods they are contained.

## Macro Minerals

Vitamin	Function	Common signs of Deficiency in ASD	Overdose Symptoms	Food Sources
<b>Calcium</b> (Ca)	Bone and tooth structure Muscle function Clotting Heart rhythm Nerve function and regulation of blood vessel Hormone and enzyme secretion Cell membrane permeability Nerve transmission Helps activate enzymes needed to convert food into energy	Seizures Insomnia Irritability Anxiety Brittle nails Rickets Osteoporosis Osteopenia Cramps Periodontitis Tremors Hypertension	Constipation Alkalosis Joint pain Soft tissue Calcification Kidney stones Hinders absorption of iron in body and other minerals	Hiziki (seaweeds) Wakame (seaweeds) Arame (seaweeds) Kelp/Kombu (seaweeds) Soybeans Parsley Carrot tops Watercress Chickpeas Buckwheat Broccoli Milk Brown rice Hazelnuts Sesame seeds Sardines
<b>Phosphorus</b> (P)	Along with calcium, is needed to build bones and teeth Needed for metabolism, nerve and muscle function Needed for body's utilization of carbohydrates and fats Required for synthesis of protein for growth, maintenance and repair of cells and tissues Crucial for the production of ATP, a molecule body uses to store energy Helps regulate acid base balance Kidney function Helps body use other vitamins	Dizziness Neurological problems Muscle cramps Bone problems Ataxia Muscle myopathy Paresthesia Rickets Cardiac myopathy	Hypocalcemia Hinders body's absorption of calcium	Pumpkin seeds Sunflower seeds Sesame seeds Arame (seaweeds) Nori (seaweeds) Brown rice Lentils Rye Adzuki beans Oats Dulse (seaweed) Snapper Cod Sardines Chicken Beef

## Macro Minerals

Vitamin	Function	Common signs of Deficiency in ASD	Overdose Symptoms	Food Sources
<b>Magnesium</b> (Mg)	Activates enzymes to release energy in body (ATP) Needed by cells for genetic material and bone growth Hormone and neurotransmitter metabolism Blood pressure regulation Blood sugar metabolism Metabolism of Calcium and Vitamin C Involved in structuring basis genetic material (DNA & RNA)	Insomnia Irritability Depression Constipation ADHD Nervousness Fatigue Hyperactive Nausea Confusion Sleep seizures GI upset Cramps Arrhythmia Osteoporosis PMS Muscle tension Twitching Rapid heartbeat	Diarrhea Stomach cramps Nervous Disorders Vomiting Fatigue <b>Others</b> Low Ca, Phosphorus. Low BP Flushing	Kelp/Kombu (seaweeds) Almonds Dulse Sesame seeds Soybeans Lima beans Dried peas Lentils Millet Wheat Rye Brown rice Spinach Swiss chard Avocado Parsley Kale Carrots Onions Blackberries Dried banana
<b>Potassium</b> (K)	Helps regulate neuromuscular function Stabilizes heart rhythm Maintains the proper electrolyte and acid-base balance in the body Helps lower risk of high blood pressure Supports kidney function Supports the function of the nervous system	Muscle weakness and cramping Lethargy Nervousness General fatigue Dry skin Diarrhea Impaired cognitive function Heart arrhythmias Acne Chills Edema Thirst Glucose intolerance Decreased reflex response Elevated cholesterol	Hyperkalemia (high potassium levels in the blood) Cardiac arrhythmia Cardiac arrest	Aduki beans Pinto beans Soybeans Chickpeas Almonds Sunflower seeds Sesame seeds Prunes Tangerines Oranges Watermelon Green, leafy vegetables Cantaloupe Berries Orange Juice Potato

# Yam Latkes

**Yields: 6 Latkes**

## **Ingredients**

- 2 cups yams, coarsely grated
- 1 cup butternut squash, peeled and coarsely grated
- 1/2 cup red bell pepper, chopped fine
- 1 apple, peeled and grated
- 15 ounce can garbanzo beans (chickpeas) drained
- 1 egg or egg replacer
- 1 teaspoon sea salt
- 1/4 cup parsley or cilantro
- 1/2 cup brown rice flour
- 8 tablespoons coconut or grape seed oil

## ***Yams***

*Creamy or firm when cooked, yams have an earthy taste. There is great confusion between yams and sweet potatoes. Most of the vegetables labeled "yams" in the market are really orange-colored sweet potatoes.*

## **Directions**

Preheat oven to 350°. Line a cookie sheet with parchment paper. Combine yams, squash, bell pepper and apple in a large bowl. Puree garbanzo beans in a processor; add egg and salt and blend. Transfer to a small bowl and mix in cilantro/parsley and add to yam mixture along with the brown rice flour. Mix well. Heat skillet with 8 tablespoons of oil and drop one heaping tablespoon of batter into the hot oil, spread to a 3-inch round, cook until brown, turn over and cook the other side. Repeat till all batter has been used. Place browned latkes on a parchment-lined cookie sheet and bake for 15 minutes.

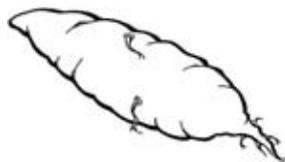
## **Ingredients to Consider on Specific Diets**

Gluten & Casein Free .....Yes      Phenol Free .....Yes

Low Oxalate Diet .....Yes      Specific Carbohydrate Diet .....No

*This recipe is also Soy free, Corn free, but is not Rice free*

**Oral Motor Rating** 😊 😊



# Chopped Meat Patties

**Yields: 4 Medium Patties**

## Ingredients

- 1 pound chopped meat  
(use only free-range beef, bison or buffalo meat)
- 1 teaspoon sea salt
- 6 tablespoons coconut, olive, or grape seed oil

## Directions

Preheat oven to 350°. Mix meat and sea salt together in a bowl; divide evenly into 4 amounts. Form 4 patties and place on ungreased cookie sheet lined with parchment paper. Bake approximately 10 to 15 minutes. Cool and serve. Patties may also be sauteed in a pan with a little oil. Cook over medium heat for 2-3 minutes per side.

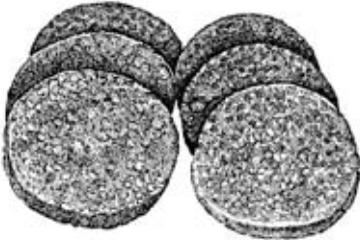


## Ingredients to Consider on Specific Diets

- Gluten & Casein Free ..... Yes
- Low Oxalate Diet ..... Yes
- Phenol Free ..... Yes
- Specific Carbohydrate Diet ..... Yes

*This recipe is also Soy free, Corn free and Rice free*

**Oral Motor Rating** 😊😊😊



# Easy Chicken Pancakes

**Yields: 2 Pancakes**

## **Ingredients**

- 1 boneless chicken breast
- 3 eggs or egg replacer
- 1/2 cup coconut or almond flour

### ***Coconut Flour***

*Coconut flour is gluten-free and hypoallergenic; it consists of the highest percentage of dietary fiber found in any flour. Coconut flour is ideal for baking. Almonds are one of the most nutritious nuts and are a rich source of magnesium. The texture of either flour makes it a good choice in a variety of baking recipes.*

## **Directions**

Boil chicken breast in water until done, season as desired. Using a food processor, blend the chicken, eggs, and flour and process until completely smooth. Mixture will look just like thick pancake batter. Use 1/4 cup of the mixture and cook on hot greased skillet like a pancake. Batter may need to be spread out a bit so that it is not too thick. These cook much faster than flour pancakes. Flip them fast and cook both sides and enjoy.

## **Ingredients to Consider on Specific Diets**

- Gluten & Casein Free ..... Yes
- Phenol Free ..... Yes (if you use coconut flour)
- Low Oxalate Diet ..... Yes (if you use coconut flour)
- Specific Carbohydrate Diet ..... Yes

*This recipe is also Soy free, Corn free and Rice free*

**Oral Motor Rating** 😊😊😊

# Banana Nut Pancakes

Yields: 6 Pancakes

## Ingredients

- 1 1/2 cups rice or coconut flour
- 2 tablespoons baking powder (aluminum free)
- 1 teaspoon sea salt
- 1/2 teaspoon xanthan gum
- 2 large ripe bananas, mashed
- 3 eggs or egg replacer
- 1 1/2 cups water
- 3 tablespoons safflower or grape seed oil
- 2 tablespoons honey or maple syrup
- 1/2 cup walnuts, finely chopped

### *Xanthan Gum*

*Xanthan gum can also be used as a replacement for gluten in gluten free bread. It helps bind bread dough together so that it can trap gas from yeast, allowing bread dough to rise.*

## Directions

In a large bowl, combine flour, baking powder, salt and xanthan gum. In a small bowl, mash bananas with a fork and set aside. In another small bowl, beat eggs, water, oil and honey until completely mixed. To this small bowl, add mashed bananas and beat until completely mixed. Add all this to the flour mixture in large bowl. Blend all together to form a batter and make small pancakes from it. Heat frying pan spread with some grape seed oil, and cook pancakes on both sides until light brown.

## Ingredients to Consider on Specific Diets

Gluten & Casein Free .....Yes      Phenol Free .....Yes (if you use maple syrup)

Low Oxalate Diet .....Yes      Specific Carbohydrate Diet .....No

*This recipe is also Soy free, Corn free and Rice free (use coconut flour)*

Oral Motor Rating 

# BREAKFAST MUFFINS



## Banana Muffins

**Yields: 12 Muffins**

### Ingredients

- 1 ripe banana
- 2 eggs, lightly beaten, or egg replacer
- 1/4 cup sunflower, grape seed, or coconut oil
- 1/2 cup almond or rice milk
- 1/2 cup honey
- 1 1/2 cups almond or coconut flour
- 2 teaspoons baking soda
- 1 teaspoon cinnamon (optional)
- 1/4 teaspoon sea salt
- 1/2 cup walnuts (optional), finely chopped

### Directions

Preheat oven to 350°. In a small bowl, mash banana and set aside. In a large bowl, blend together the eggs, oil, and milk, and then add xylitol or honey and bananas. Stir in all dry ingredients. Mix well and add chopped walnuts, if desired. Spoon into oil-sprayed muffin pan or into paper muffin cups and bake 40 to 45 minutes, or until a toothpick inserted in the center comes out clean.

### *Rice Milk*

*Compared with cow's milk, rice milk contains more carbohydrates. Many people are allergic to dairy and soy, so rice, nut, or seed milk remains an alternative.*

### Ingredients to Consider on Specific Diets

- Gluten & Casein Free ..... Yes
  - Phenol Free ..... No
  - Low Oxalate Diet ..... Yes (if you use coconut flour and rice milk)
  - Specific Carbohydrate Diet ..... Yes (if you use almond milk)
- This recipe is also Soy free, Corn free and Rice free (use almond milk)*

**Oral Motor Rating**



# Pumpkin Muffins

**Yields: 12 Muffins**

## **Ingredients**

- 1 cup pumpkin or butternut squash  
(fresh or canned)
- 1 1/2 cups almond or coconut flour
- 2 teaspoons baking soda
- 1 teaspoon cinnamon
- 1/4 teaspoon sea salt
- 2 eggs, lightly beaten, or egg replacer
- 1/2 cup honey
- 1/3 cup almond, rice, or hemp milk
- 1/4 cup grape seed, safflower, or sunflower oil

## ***Cinnamon***

*Cinnamon's essential oils qualify it as an "anti-microbial" food, and cinnamon has been studied for its ability to help stop the growth of bacteria as well as fungi, including the commonly problematic yeast Candida. When added to food it is a natural preservative.*

## **Directions**

Preheat oven to 350°. If using fresh pumpkin/squash, cut up and cook for 15 minutes in a covered pot with a little water, then blend in a blender until smooth. Set aside. In a large bowl, mix eggs, honey, milk, oil, water, and pumpkin. Combine flour, baking soda, salt and cinnamon in a bowl and then stir into the egg-pumpkin mixture. With a hand mixer, beat for 3 minutes. Spoon into an oil-sprayed muffin pan or into paper muffin cups. Bake 40 to 45 minutes or until a toothpick inserted in the center comes out clean.

## **Ingredients to Consider on Specific Diets**

- Gluten & Casein Free ..... Yes
  - Phenol Free ..... No
  - Low Oxalate Diet ..... Yes (if you use coconut flour, hemp or rice milk)
  - Specific Carbohydrate Diet ..... Yes (if you use almond milk)
- This recipe is also Soy free, Corn free and Rice free (use hemp or almond milk)*

**Oral Motor Rating**



# Breakfast Muffins

Yields: 12 Muffins

## Ingredients

- 1 1/4 cups brown rice flour
- 1 cup coconut flour
- 1/2 cup ground flax seed (flax meal)  
or hemp seeds
- 1 1/2 teaspoons xanthan gum
- 1 1/2 teaspoons baking soda
- 1 teaspoon sea salt
- 1/2 cup honey or maple syrup
- 1 1/4 cups rice milk
- 1/4 cup safflower, coconut, or grape seed oil
- 1 teaspoon gluten-free vanilla extract
- 1 lemon, grated lemon peel
- 1 1/4 cups mashed banana, or finely  
chopped pear or apple

## Hemp Seeds

*Hemp seeds contain all the essential amino acids and a balanced ratio of omega 6 to omega 3. They can be eaten raw, sprouted, made into hemp milk, and used in baking. Flaxseed has ample amounts of omega 3 essential fatty acids, amino acids, and high dietary fiber.*

## Directions

Preheat oven to 325°. Use a standard 12-cup muffin tin and line with paper liners or oil. In large bowl, combine flours, flax meal, xanthan gum, baking soda, salt, and honey. Mix well, and set aside. In medium bowl, add together milk, oil, vanilla, and lemon peel. Stir liquid mixture into dry ingredients. Gently fold fruit into batter, which will be the consistency of thick cake batter. Distribute batter evenly among tins. Bake for 35 minutes or until toothpick inserted in center comes out clean. Remove from oven. While muffins are still warm, brush with a mixture of honey and lemon juice.

## Ingredients to Consider on Specific Diets

Gluten & Casein Free .....Yes      Phenol Free .....Yes (if you use maple syrup)  
Low Oxalate Diet.....Yes      Specific Carbohydrate Diet .....No

*This recipe is also Soy free, Corn free, but is not Rice free*

Oral Motor Rating 

# Jam Muffins

**Yields: 6 Muffins**

## **Ingredients**

- 1 cup rice, almond, or hemp seed flour
- 1/2 cup ground flax seed
- 2 tablespoons honey or maple syrup
- 2 tablespoons baking soda
- 1 teaspoon sea salt
- 1 egg or egg replacer
- 6 tablespoons coconut oil
- 5 tablespoons no-sugar fruit jam (All Fruit)

### ***All Fruit***

*Jelly, jam and preserves are all made from fruit mixed with sugar and pectin. Instead use All- Fruit jams as they are sweetened only with fruit and fruit juice and they are 100% all natural.*

## **Directions**

Preheat oven to 400°. Oil muffin tin, or use liners In a large bowl, blend flour, baking soda and salt. In a small bowl, mix egg, oil, honey, and fruit jam and add to the flour mixture in large bowl to make a batter. Fill a muffin tin with batter and bake for 25 minutes or until toothpick comes out clean.

## **Ingredients to Consider on Specific Diets**

- Gluten & Casein Free ..... Yes
  - Phenol Free ..... Yes (if you use hemp seed flour and maple syrup as sweetener)
  - Low Oxalate Diet ..... Yes (if you use rice flour or hemp seed flour)
  - Specific Carbohydrate Diet ..... No
- This recipe is also Soy free, Corn free and Rice free (use almond flour hemp seed flour)*

**Oral Motor Rating**

