The Value of Fruits and Nuts in the Dietary

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References

Agricultural Report Pa. '86
State Horticultural Society Pa. '86
State Horticultural Society Pa. '87
Ia. Horticultural Society '79
Ia. Horticultural Society '86
Food Products of the World
Maine Agricultural Report '67
Michigan Pomological Society '88
Michigan Horticultural Society '90
Bul. 122 Farmer's Bulletins 101-125
Sanitarian Vol. 42
Hutchinson Food and Dietetics
American Kitchen Magazine Vol. 3
Thomson Practical Dietetics.

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In the earliest records of history the diet of people consisted largely of fruits and nuts, and as a result we find they were strong physically, mentally and morally when they partook of such a diet. We have an illustration in the antediluvians who lived for hundreds of years. The early Greeks and Romans subsisted largely on bread and fruit. They were powerful in physicak strength as well as having the greatest minds. They built large cities, and were the rulers of the world, but when they indulged in luxuries and vices came their downfall. Fruit eating races are noted for their bright educated and intelligent minds. It has been said that "fruit happiness and longevity go together". To make progress toward high moral and physical development one must partake largely of fruits, which should be well mingled with the other diet.

The history of cultivated fruits is the history of civilization. When communities are in a barbarous condition fruit cultivation is unknown. The higher the civilization the greater the amount of time, energy and thought is devoted to the im-

provement as well as the introduction of new varieties of fruits, until at the present time a special line of work of our government is the testing of new varieties of fruits and nuts for the climate and soil of the United States. Systematic cultivation did not begin until the 18th Century. The monks were the first gardeners and the industrial classes did not engage in it until their decline. Great advancement was made during the reign of Queen Elizabeth. The growth has been marvelous when we consider how sub-tropical fruits have been introduced, improved, acclimatized and grown in temperate regions, and to day are within the reach of all people at all times of the year, and at a moderate cost. Even the date, which it has been thought could only be grown in the Sahara desert, is being transplanted to parts of the United States and it is believed that it may be grown with success and profit.

In the earlier development of the country the quickest returns were given from cereals and live-stock, but as the territory is becoming more thickly settled and a less number of acres may be used,

must be found, and the people are experimenting largely as to the value of fruits and nuts.

Different soils and climates also the seasons effect the chemical composition of fruits. On the average they are about 75% water and 4-6% cellulose. This depends upon the degree of ripeness. Unripe fruits contain a notable proportion of starch, which on ripening is fermented into glucose, fruit and other sugars. The only fruits retaining it are the banana, bread-fruit and baobab. The olive is the only fruit which yields an important amount of oil. The proportion of sugar varies, figs and raisins having the greatest amounts, the peach and apricot the lowest. The luscious fruits which seem to melt in the mouth, contain a great deal of soluble substance, pectin, which is a carbohydrate, and enables fruit to gelatinize when boiled. The chief organic acids found in fruits in combination with alkalies are, Malic, tartaric and citric. The gum, pectin and other gelatinious substances found in some fruits seem to mask the free acids. The sour taste of some fruits as the gooseberry is due to the excess of free acids over the gums.

The nuts contain proteids some starch and more or less fat.

Fruit in its perfection is the purest food as it is free from the adulterations that many compound foods are subject to. But one should be careful in eating it in its natural state, that it is perfectly clean and free from bacteria It should never be eaten when not perfectly ripened or when over-ripe.

By the generous use of perfectly ripened fruit the liver, kidneys, and bowels are incited to a healthful action, and the action of these organs means the condition of the blood, and so the health and strength of the whole system.

Fruits have the power of neutralizing lithic acid, and preventing rheumatism gout and gravel. Fruit furnishes bulk for the intestines, while the fruity combined acids diminish the acidity of the urine. The alkaline vegetable salts become decomposed by the systems and converted into alkaline carbonates which pass away in the urine.

By a fruit diet the ptomaines are dimin-

ished and more acids and water directed toward the flushing of the kidneys. "Physiologists say that an aliment abounding in nutritive matter may be inferior as a food to one which contains a much smaller proportion of nutriment, but facilitates digestion and promotes the proper action of the bowels by an increased secretion". Fruit acts especially on the liver stimulating the action of the bile which has been termed "Natures Aperient". The bile prevents fermentation of the food. More fruit should be used in the diet and less meat. Since there has been such a large use of canned fruits by soldiers scurvy is disappearing. The water supplied by fruits aids in carrying the waste products from the body, while the alkali salts which they contain serve to counteract the scorbutic tendencies. This water is also aseptic which is another advantage. The acids contained in fruits are rich in oxygen, which when released serves to furnish energy to the body.

The dietetic value of a food is dependent upon the individual. Certainly a generous use of fruit will keep the body in a condition which will enable it to overcome disease. The Spanish and Italian street peddlers'

with their fruit and vegetable diet escape Cholera and yellow-fever while their meat eating neighbors die by the hundreds.

The meat of nuts has double the fuel value of flour. 1 lb. of unshelled nuts would furnish 1/2 the protein and the same amount of potential energy as 1 lb. of flour. One pint of peanuts contains as much protein as 1 lb. of rump steak, while at average prices the latter costs three times as much.

The energy of nuts is largely from fats and that of flour from carbohydrates. The unsuitableness of using them alone is that the energy in the form of fat is too concentrated. There is no reliable data as to the digestibility of nuts. It is probable that if they were eaten properly much of the prejudice now existing would disappear.

Several physicians in different parts of Europe have been experimenting as to the medicinal qualities of nuts and highly recommend their use as food, under special conditions for certain diseases. Nuts contain a kind of salt especially adapted for lubricating or softening the muscles of the arteries. Some practitioners claim that elderly people would be benefitted by a more extensive nut diet.

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If the medicinal uses of fruit were understood and care taken to use the proper kinds much less medical treatment would be needed. Many physicians place great value on ripe fruit to cure dyspepsia, and avoid the ills of indigestion. Next to fasting and fresh air, fruit, light-bread and cold sweet milk are recommended as a diet in colds and catarrh. Many acids contained in the external cuticle of fresh fruits as benzoic, and quinic, have a solvent action and may be eaten in cases of gravel.

Students of temperance are almost a unit in declaring that the use of fruit in the diet in place of the heating and abnormally stimulating food habitually placed on many tables would be a powerful agent in abolishing the craving for stimulants.

Nuts should be eaten with the coarser foods also those which can make up the deficiency in protein. Care should be taken that they are eaten in a finely divided condition so that they may be more easily digested. The nutritive value of nuts is extremely high and when suitably prepared they may form substitutes for meat to a considerable extent for those

resemble it in containing much proteid and fat in little bulk. They should be taken as a food at meal time, and not eaten between meals or as a dessert after a heavy meal.

Fruit should be taken with meals, and if possible in some form at every meal. The acids are digestants and should be taken with other food to aid in digestion as well as to prevent irritation of the stomach by an excess of acid. Though their laxative action is more marked when taken between meals or early in the morning.

The pulpy condition is increased by roasting and rupturing the cells mingling the sugar and acids. The laxative properties are not weakened by cooking, while they are more digestible, so that they may even be eaten by invalids with a weak digestion. In this way they require more sugar which may induce flatulency in this case the acidity may be largely overcome by bi-carbonate of soda or saccharine may be used instead of sugar. The heavier fruits as the banana are difficult of digestion and should not be eaten at

When serving them to an invalid it is better to cook them as they contain such a large per cent of raw starch.

The apple has been rightly called the patriarch of all fruits. It may be put to a use of every kind, and may be had in its natural state at all times of the year. The apple is superior to the potato in principles that go to increase the muscle and brain of man, and in fattening properties nearly equal." Liebig says of the importance of apples as food. They contain such a fine combination of vegetable acids extractive substances and aromatic principles with the nutritive matter as to act powerfully in the capacity of a refrigerant, tonic and antiseptic, and when freely used at the season of ripening by rural laborers and others prevent debility, strengthen digestion, correct putrefactive tendencies of nitrogenous food, avert scurvy and probably maintain and strengthen the power of productive labor."

We next have the peach which is valuble because nutritious on account of the sugar, gum, etc. Refrigerant from the malic acid, but should be eaten with moderation because of the disorders produced in the bowels.

The pear is similar to the apple though said to be easier to digest when perfectly ripened.

Plums are both wholesome and nutritious. Like all the stone fruits are valuble for the iron they contain in the form of ferrocyanic acid.

The prune is a mild laxative as well as containing much food value.

Figs, dates and raisins are rich in nutriment. The nutriment from the date is mostly in the form of sugar. It is said that 1/2 lb. of dates and 1/2 pint of milk make an ample and satisfying meal for a person engaged in sedentary labor. Weight for weight dried figs are more nourishing than bread. They are used in chronic constipation, lung and kidney diseases, and are healing as poultices.

The banana is rich in food material especially starch. While it contains more proteid than similar carbohydrates. The flour is easily digested and highly nutritious. Porridge made from this is beneficial in gastritis, and forms a valuble invalid food as it contains a large percentage of sugar. While dried in the sun and sprinkled with sugar they are a favorable substitute

for the dried fig.

Oranges. Some one has said that "oranges should be eaten at the proper time and that is all the time" They contain citric acid in a mild form and may be taken where there is gastric irritation. But care should be taken never to eat the white cell walls, as they are indigestible and may cause irritation. They allay thirst and may be taken in almost any form of disease as well as serving for a preventative. The rind of bitter oranges and lemons is used as a stomachic and tonic.

Lemon also contains citric acid. It is a well known remedy for seasickness and when added to boiled fish or cooked cereals renders them more digestible.

Pineapples are usually picked rather green and contain a large amount of Cellulose which is indigestible. But the juice contains a ferment capable of digesting proteid and is used in the preparation of pre-digested invalid food or it is given to the patient after other food.

Olives are valuble chiefly for the oil which they contain.

Tamarinds are a cooling laxative when added to milk, they cause curdling and

form a whey which may be used as a beverage in fevers, when constipation is to be overcome.

Pomegranite contains tannoced for the tapeworm, which is made from an infusion of the rind.

Fresh grapes are wholesome, nutritious, being equal to milk as a source of energy or heat, but of course lacking in protein. They serve as a refrigerant, diuretic and laxative. The tartrate of potash promotes the flow of various excretions. Institutions known as "grape cures" abound in Europe. These are resorts for invalids where they may be cured of chronic diseases with success. Ripe grapes have cured an epidemic of dysentary. Grapes exceed all other fruits in their ratio of sugar. The strawberry is certainly king of the berries. It has a delicious flavor, cooling properties with tartness enough to make it agreeable. They are rich in potash and lime salts hence they are recommended for rheumatism and gout. The berries contain a greater amount of free acids than stone fruits or apples and relatively small quantities of gum and pectin.

There is no better fruit tree for

Children than the everbearing mulberry.

The elderberry furnishes an astringent wine which is a diuretic and sudorific.

Of all the kind of nuts used for food the chestnut is probably of the greatest general value. This is due to its containing a high proportion of carbohydrates along with much proteid and fat. The greatvalue of the chestnut is realized by the poor peasants of France. During the autumn and winter they often make two meals a day from chestnuts. The nuts are prepared by removing the shell blanching and steaming. Salt and milk are added when they are eaten. Sometimes they are ground after blanching and the meal made into flat cakes resembling the oaten cakes of the Scotch peasants. It serves largely to replace the use of corn among the poorer classes, while in Korea it takes the place of potatoes. Physicians state that chestnuts are wholesome, nutritious and fattening. The fact that Chestnuts contain so much starch is a reason that they should always be cooked.

The peanut though belonging to the pulse family more closely resembles the true nuts. Like these it is rich in.

proteid and fats and may be used as a diabetic food. Chestnuts and peanuts when properly prepared furnish nutritious soups. Peanut oil is used for cooking and serves as an adulterant for olive oil. Peanuts as well as other nuts serve as a paste for sandwiches when finely ground. Salads, croquettes, and stuffing for roast fowl may be diversified by the addition of nuts.

The almond is a valuble nut as it is rich in nitrogenous matter. Owing to the deficiency of carbohydrates it is largely used in the manufacture of diabetic breads. They are also rich in fats, and contain a ferment called emulcin.

Pistachio nuts are used in flavoring and coloring confectionary and in France for seasoning sausage and other meats.

The Kola nut contains three times the percentage of starch, but less fat than Chocolate. It contains theobromine the active principle of Cocoa. It is stimulating and nutritious and it is probable that chocolate prepared from them will more readily agree with delicate stomachs. Caffeine now much used as a medicine in seasickness and nervous complaints can be readily obtained in a free state from these berries, and in a larger quantity than is found in the

coffee berry. In Africa it is stored as we do corn and valued as a food. Made into a paste they are considered by the medical faculty of great value as an article of food for invalids and persons having weak digestion. The nut eaten in its raw state is known to be a powerful antidote for alcohol in the human system. It is much used by the people of Africa in the form of a decoction as a cure for yellow fever.

Cokoanut. The small green nuts are grated fine for medicinal uses and when mixed with the oil of ripe ones become a healing ointment. The jelly which lines the shell is a nutritious food

The Gnigko nut found in Japan is roasted like chestnuts or the kernel may be cooked like green peas.

The pinon or pine nut is rich in oil and supposed to be strengthening for which use it and the chestnut are given to children of a weakly condition but it is hard of digestion and should not be given to those whose digestive organs are weakened.