# AN ALLIED HEALTH: THE PASTA

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#### ABSTRACT

The Mediterranean diet has been recognized historical and cultural heritage of great importance, nutritional and culinary excellence to scratch. In the Mediterranean diet 50-60% of kilocalories should come from carbohydrates, 25-30% from lipids and the remaining 10-15% from protein, the dough thus represents the main source of complex carbohydrates, ideal energy source is essential for the daily activities ensuring the good health state. The beneficial properties and the nutritional values of pasta are numerous Pasta is a ally of the diet: satiating has great power and is an excellent solution for stress. It also contains vitamins of the B group essential for the proper functioning of the nervous system, the starch paste is free glucose, which promotes the synthesis of serotonin, which gives well-being. Some studies have shown that, among the carbohydrates, the pasta has the lowest glycemic index not therefore increases the levels of C-reactive protein, which proved to be correlated with cardiovascular risk does not increase the risk of hypertension because it contains very little sodium and fiber, the latter fundamental in the prevention of cancer.

Keywords: Mediterranean Diet, Pasta, Prevention, Health and Wellness.

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### Introduction

The Mediterranean diet is not a simple list of foods but as suggested by the etymology of the word (from the greekdiaita), indicates a lifestyle, a way of life; it is grounded in respect for the territory and biodiversity, and ensures the conservation and development traditional activities and crafts linked to fishing and farming in the community Mediterraneo. The Mediterranean diet has always been recognized for its health benefits, due to the prevalence of healthy

and wholesome food. Adopt as a stable and lasting diet a diet based on Mediterranean cuisine also serve as a protective factor from major chronic diseases. The Mediterranean diet protects the body, defending it from the development of heart diseases, from cancer to Parkinson's disease or Alzheimer's. The adoption of this diet is, therefore, a real preventive therapy to reduce the risk of premature death among the population<sup>(1-15)</sup>. In November 2010, the Mediterranean diet has been recognized by UNESCO Intangible Cultural Heritage of Humanity.

A heritage, including the eating habits of the peoples of the Mediterranean Sea basin. UNESCO awards the Mediterranean diet

Even the pasta is a World Heritage Site. The typical dishes of the Mediterranean diet are thus culinary excellence and nutritional top notch. The short cooking enhances the aromas and flavors of all the ingredients, each of which expresses decided nourishing and protective properties. The pasta is the basis of mediterranea diet it is considered by Italians, as well as a food, a unifying element shared throughout Italy: it is an integral part of life, popular culture (simple and traditional) of Italian, not only their cooking, but their very essence, always. Indispensable in a variable and balanced diet and meet the tastes of about 88% of Italians and 50% of Europeans. A food with numerous recognized by the world's leading nutritionists merits and benefits.

The calorie intake per 100 g of durum wheat semolina pasta is about 360 kcal, of which 72% in the form of complex carbohydrates, 12% proteins and as a content to a negligible fat. In a balanced and healthy diet (Mediterranean diet), 50-60% of kilocalories taken during the span of the day should come from carbohydrates, 25-30% from lipids and the remaining 10-15% from protein. The beneficial properties of the dough are numerous and significant are the nutritional values. Mistakenly it believed that such food results in weight gain, overweight actually depends on the portions, from the seasoning and the sedentary lifestyle. With a diet of pasta consumption is balanced and complete. The dough can be seen, therefore, as an excellent ally of the diet from a nutritional point of view is a complete and constitutes the foundation of the Mediterranean diet food. The nutritional values of the dough change depending on the type, based on the fact that the dough is traditional or integral semolina.

In general, however, it has up 11-13% protein and is also rich in starch, which can be up to 70-75%. It also contains vitamin B and has an abundance of minerals, among which potassium. The fats, in 100 grams of product, are present in an amount equal to 1.51 grams in semolina pasta and 2.5 grams in that integral semolina. animal proteins are absent. The wholemeal pasta, also has a high content of fiber, useful for the intestinal motility. The paste is an easily digestible food ensures energy ready to use (such as all carbohydrates) possesses a great satiating power and between the carbohydrate has the lowest glycemic index, together with the bread of durum wheat, it does not cause a sharp rise in blood glucose

guaranteeing satiety, in addition to starch, the paste contains, albeit in smaller quantities, proteins, minerals (calcium, phosphorus and iron). According to the latest research does not raise the levels of C-reactive protein linked to cardiovascular risk, and also has very little sodium (important in the prevention of hypertension) also fibers, which are crucial in preventing cardiovascular diseases and cancer; It contains vitamins of the B group, in particular of B1 (or thiamine), which are indispensable for the proper functioning of the nervous system<sup>(16-25)</sup>.

#### Conclusion

Finally, the glucose that is released from starch favors the synthesis at the brain level of serotonin, a neurotransmitter that by a sense of well-being is therefore also an excellent solution also against the stress also its taste being good, manages to put But the mood benefits of pasta are not limited to controlling stress and anxiety; many studies have shown that the Mediterranean diet, in which the dough has a primary role, reduces the risk of contracting Alzheimer's disease. The pasta is also indicated for athletes. Before an important competition or strenuous workout, it must be introduced a meal of carbohydrates, which will be consumed during exercise. From therefore dispel the cliché that associates the dough to an unbalanced diet, and avoid those dietary plans that eliminate and reduce all carbohydrate-containing foods(26-31).

## References

- Tong TY, Wareham NJ, Khaw KT, Imamura F, Forouhi NG. Prospective association of the Mediterranean diet with cardiovascular disease incidence and mortality and its population impact in a non-Mediterranean population: the EPIC-Norfolk study. BMC Med. 2016; 14: 135. DOI: 10.1186/s12916-016-0677-4.
- 2) Padalino L, Caliandro R, Chita G, Conte A, Del Nobile MA. Study of dryingprocess on starchstructuralproperties and theireffect on semolina pasta sensoryquality.CarbohydrPolym. 2016; 153: 229-35. doi: 10.1016/j.carbpol.2016.07.102.
- 3) Di Bernardo G, Messina G, Capasso S, Del Gaudio S, Cipollaro M, Peluso G, Casale F, Monda M, Galderisi U. Sera of overweight people promote in vitro adipocyte differentiation of bone marrow stromal cells. Stem Cell Res Ther. 2014; 5(1): 4. doi:10.1186/scrt393.
- Chieffi S, Iavarone A, Iaccarino L, La Marra M, Messina G, De Luca V, Monda M. Age-related differences in distractor interference on line bisection. Exp brain Res. 2014; 232(11): 3659-64. doi:10.1007/s00221-014-4056-0.

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Chieffi S, Iachini T, Iavarone A, Messina G, Viggiano A, Monda M. Flanker interference effects in a line bisection task. Exp Brain Res. 2014; 232(4): 1327-1334. doi:10.1007/s00221-014-3851-y.

- Monda M, Messina G, Scognamiglio I, Lombardi A, Martin GA, Sperlongano P, Porcelli M, Caraglia M, Stiuso P. Short-term diet and moderate exercise in young overweight men modulate cardiocyte and hepatocarcinoma survival by oxidative stress. Oxid Med Cell Longev. 2014; 2014. doi:10.1155/2014/131024.
- Triggiani AI, Valenzano A, Ciliberti MA, Moscatelli F, Villani S, Monda M, Messina G, Federici A, Babiloni C, Cibelli G. Heart rate variability is reduced in underweight and overweight healthy adult women. Clin Physiol Funct Imaging. 2015. doi:10.1111/cpf.12281;
- 8) Messina, G., Monda, V., Moscatelli, F., Valenzano, A.A., Monda, G., Esposito, T., Blasio, S.D., Messina, A., Tafuri, D., Barillari, M.R., Cibelli, G., Chieffi, S., Varriale, B., Monda, M. Role of orexin system in obesity. Biol Med. 2015; 7(4). doi:10.4172/0974-8369.1000248.
- Lapi D, Vagnani S, Pignataro G, Esposito E, Paterni M, Colantuoni A. Rat Pial Microvascular Responses to Transient Bilateral Common Carotid Artery Occlusion and Reperfusion: Quercetin's Mechanism of Action.Front Physiol. 2012; 27: 99. doi: 10.3389/fphys.2012.00099.
- Lapi D, Vagnani S, Pignataro G, Esposito E, Paterni M, Colantuoni A.Protective Effects of Quercetin on Rat Pial Microvascular Changes during Transient Bilateral Common Carotid Artery Occlusion and Reperfusion. Front Physiol. 2012; 3:32. doi: 10.3389/fphys.2012.00032.
- Lapi D, Vagnani S, Cardaci E, Paterni M, Colantuoni A.Rat pial microvascular responses to melatonin during bilateral common carotid artery occlusion and reperfusion. J Pineal Res. 2011; 51: 136-44. doi: 10.1111/j.1600-079X.2011.00870.x.
- Messina, G., Palmieri, F., Monda, V., Messina, A., Dalia, C., Viggiano, A., Tafuri, D., Messina, A., Moscatelli, F., Valenzano, A., Cibelli, G., Chieffi, S., Monda, M. Exercise Causes Muscle GLUT4 Translocation in an Insulin-Independent Manner. Biol Med. 2015;s3. doi:10.4172/0974-8369.1000s3007;
- 13) Valenzano A, Moscatelli F, Triggiani AI, Capranica L, De Ioannon G, Piacentini MF, Mignardi S, Messina G, Villani S, Cibelli G.Heart-Rate Changes After an Ultraendurance Swim From Italy to Albania: A Case Report. Int J Sports Physiol Perform. 2016; 11(3): 407-9. doi:10.1123/ijspp.2015-0035.
- 14) Rinaldi B, Guida F, Furiano A, Donniacuo M, Luongo L, Gritti G, Urbanek K, Messina G, Maione S, Rossi F, de Novellis V. Effect of Prolonged Moderate Exercise on the Changes of Nonneuronal Cells in Early Myocardial Infarction. Neural Plast. 2015;2015:265967. doi:10.1155/2015/265967.
- Messina, G., Viggiano, A., Tafuri, D., Palmieri, F., De Blasio, S., Messina, A., De Luca, A., Chieffi, S., Monda, M.Role of orexin in obese patients in the intensive care unit. J Anesth Clin Res. 2014; 5(3). doi:10.4172/2155-6148.1000395.
- Messina, G., Zannella, C., Monda, V., Dato, A., Liccardo, D., De Blasio, S., Valenzano, A., Moscatelli, F., Messina, A., Cibelli, G., Monda, M. The Beneficial

- Effects of Coffee in Human Nutrition. 2015; 7(4). doi:10.4172/0974-8369.1000.
- Messina A, De Fusco C, Monda V, Esposito M, Moscatelli F, Valenzano A, Carotenuto M, Viggiano E, Chieffi S, De Luca V, Cibelli G, Monda M, Messina G. Role of the Orexin System on the Hypothalamus-Pituitary-Thyroid Axis. Front Neural Circuits. 2016; 10: 66. doi:10.3389/fncir.2016.00066.
- 18) Esposito, T., Viggiano, An., Viggiano, Al., Viggiano, E., Giovane, A., Varriale, B., Messina, G., De Luca, V., Monda, M. ICV injection of orexin A induces synthesis of total RNA and mRNA encoding preorexin in various cerebral regions of the rat. J Therm Biol. 2006; 31(7): 527-532. doi:10.1016/j.jtherbio.2006.07.002.
- Messina G, Di Bernardo G, Viggiano A, De Luca V, Monda V, Messina A, Chieffi S, Galderisi U, Monda M.Exercise increases the level of plasma orexin A in humans. J Basic Clin Physiol Pharmacol. 2016; 27(6): 611-616. doi:10.1515/jbcpp-2015-0133.
- 20) Messina, G., Valenzano, A., Moscatelli, F., Triggiani, A.I., Capranica, L., Messina, A., Piombino, L., Tafuri, D., Cibelli, G., Monda, M. Effects of Emotional Stress on Neuroendocrine and Autonomic Functions in Skydiving. J PSYCHIATRY.2015; 18(4). doi:10.4172/2378-5756.1000280.
- 21) Lapi D, Di Maro M, Mastantuono T, Battiloro L, Sabatino L, Muscariello E, Colantuoni A. Effects of oleuropein and pinoresinol on microvascular damage induced by hypoperfusion and reperfusion in rat pial circulation. Microcirculation. 2015; 22:79-90. doi: 10.1111/micc.12175.
- 22) Lapi D, Mastantuono T, Sapio D, Paterni M, Colantuoni A. Clin Hemorheol Microcirc. Pial microvascular responses induced by transient bilateral common carotid artery occlusion in Zucker rats. 2013; 54: 415-29. doi: 10.3233/CH-131763.
- 23) Lapi D, Vagnani S, Sapio D, Mastantuono T, Sabatino L, Paterni M, Colantuoni A. Long-term remodeling of rat pial microcirculation after transient middle cerebral artery occlusion and reperfusion. J Vasc Res. 2013; 50: 332-45. doi: 10.1159/000353295.
- 24) Carotenuto M, Santoro N, Grandone A, Santoro E, Pascotto C, Pascotto A, Perrone L, del Giudice EM. The insulin gene variable number of tandemrepeats (INS VNTR) genotype and sleep disordered breathing in childhood obesity. J Endocrinol Invest. 2009 Oct; 32(9): 752-5. doi: 10.3275/6398.
- 25) Elia M, Falco M, Ferri R, Spalletta A, Bottitta M, Calabrese G, Carotenuto M, Musumeci SA, Lo Giudice M, Fichera M. CDKL5 mutations in boys with severe encephalopathy and early-onset intractable epilepsy. Neurology. 2008; 23: 997-9. doi: 10.1212/01.wnl.0000326592.37105.88.
- 26) Carotenuto M, Bruni O, Santoro N, Del Giudice EM, Perrone L, Pascotto A. Waist circumference predicts the occurrence of sleep-disordered breathing in obese children and adolescents: a questionnaire-based study. Sleep Med. 2006; 7: 357-61.
- 27) Lapi D, Colantuoni A, Del Seppia C, Ghione S, Tonlorenzi D, Brunelli M, Scuri R. Persistent effects after trigeminal nerve proprioceptive stimulation by mandibular extension on rat blood pressure, heart rate and pial microcirculation. Arch Ital Biol. 2013; 151:11-23. doi: 10.4449/aib.v151i1.1470.

- 28) Monda V, Villano I, Messina A, Valenzano A, Esposito T, Moscatelli F, Viggiano A, Cibelli G, Chieffi S, Monda M, Messina G. Exercise Modifies the Gut Microbiota with Positive Health Effects.Oxid Med Cell Longev. 2017;2017: 3831972. doi: 10.1155/2017/3831972.
- 29) Messina G, Valenzano A, Moscatelli F, Salerno M, Lonigro A, Esposito T, Monda V, Corso G, Messina A, Viggiano A, Triggiani AI, Chieffi S, Guglielmi G, Monda M, Cibelli G. Role of Autonomic Nervous System and Orexinergic System on Adipose Tissue.Front Physiol. 2017;8: 137. doi: 10.3389/fphys.2017.00137
- 30) Panico A, Messina G, Lupoli GA, Lupoli R, Cacciapuoti M, Moscatelli F, Esposito T, Villano I, Valenzano A, Monda V, Messina A, Precenzano F, Cibelli G, Monda M, Lupoli G. Quality of life in overweight (obese) and normal-weight women with polycystic ovary syndrome. Patient Prefer Adherence. 2017; 11: 423-429. doi: 10.2147/PPA.S119180.
- 31) Muros JJ, Cofre-Bolados C, Arriscado D, Zurita F, Knox E. Mediterranean diet adherence is associated with lifestyle, physical fitness, and mental wellness among 10-y-olds in Chile. Nutrition. 2017; 35: 87-92. doi: 10.1016/j.nut.2016.11.002.

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