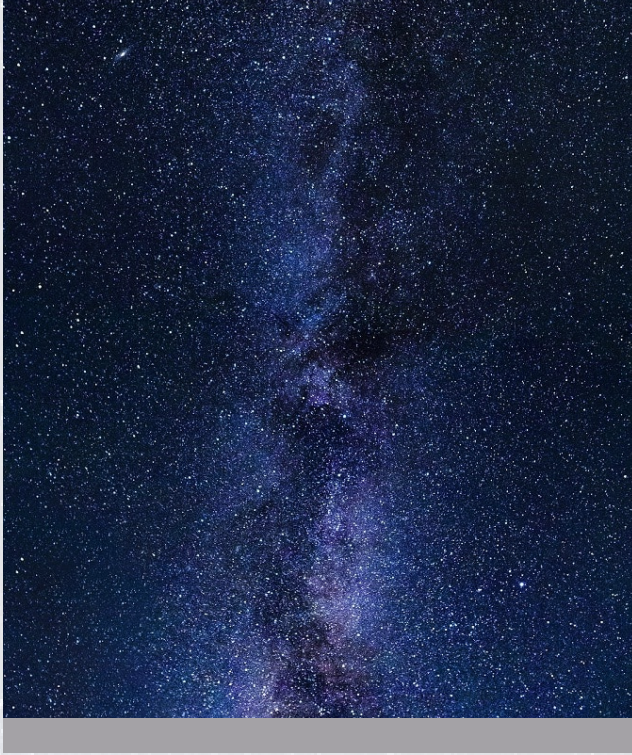


**THE 1ST
EDITION**

GARARDUS TIMES

**SCIENTIFIC READER: DIEGO SIERRA
EDITOR: DIEGO SIERRA
VISUAL MEDIA LEADER: DIEGO SIERRA**



WELCOME

About this book

Is an enlightening book that shows the world of genetics, macromolecules, micromolecules, and the vital role they play in human biology. This book explores molecules within our cells and their impact on human health and well-being.

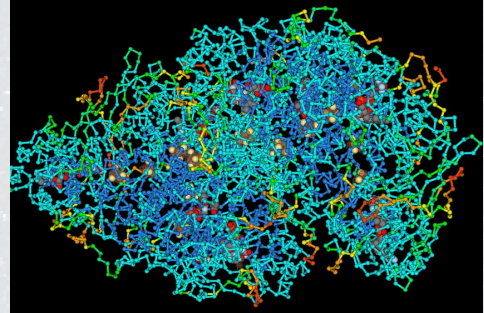
The book elucidates the essential concept of macromolecules, particularly proteins, highlighting their diverse roles within the human body and their critical involvement in various biological processes.

The book will talk about protein synthesis, illustrating how cells construct proteins from amino acids, creating life. While talking about this synthesis, the book shows the significance of proteins, elucidating their vital functions within the body, ranging from structural support to enzymatic activities that drive crucial biochemical reactions.

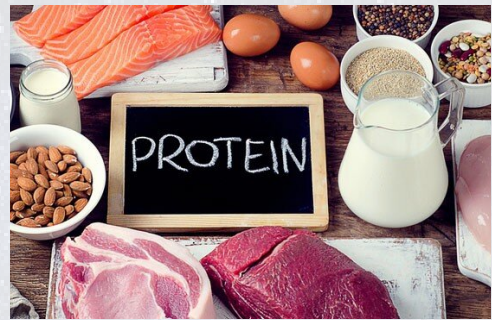
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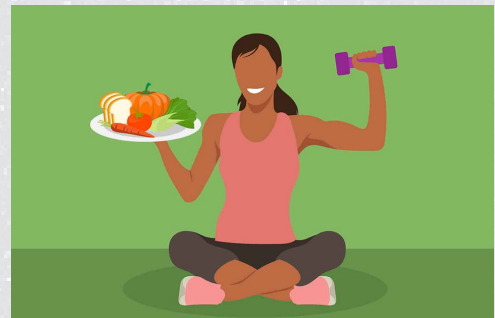
1 - What are macromolecules?



2 - How does my body obtain proteins?



3 - What is being healthy?



3 - Our recipes





MACRO MOLECULES

THE POWER
OF

AMINO
ACIDS

STRUCTURE

A **macromolecule** is a very large molecule that is important for different biological processes.

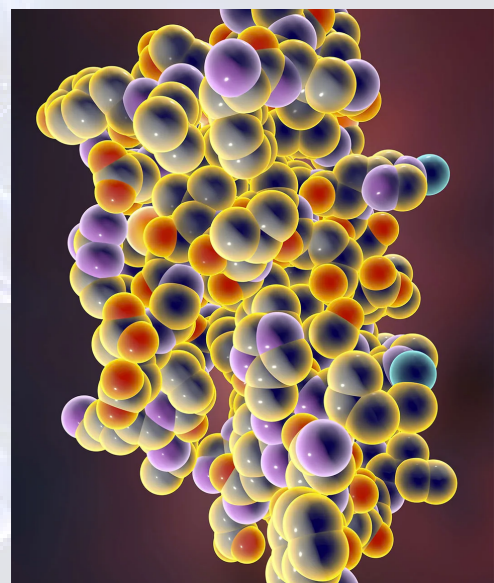
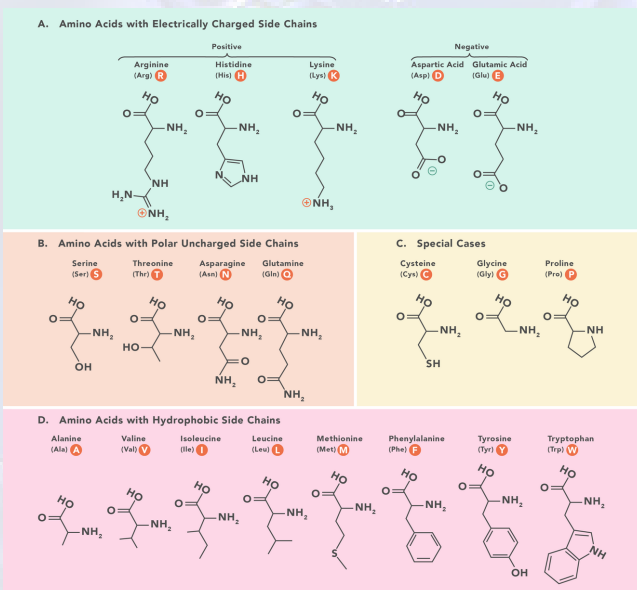
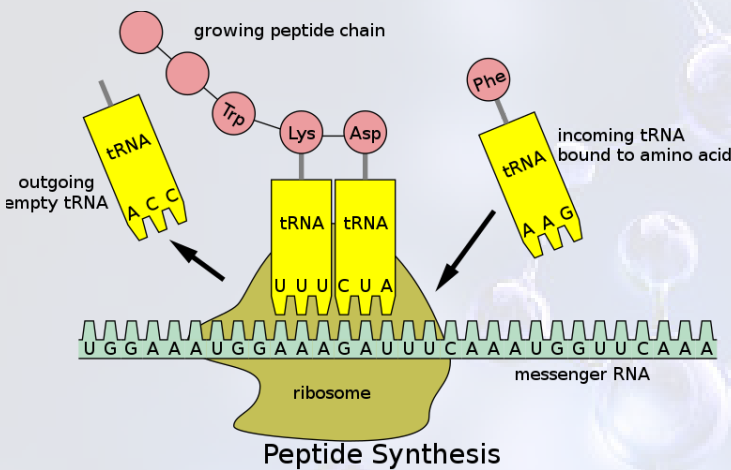
There are different places where we can find the macromolecules divided in 3 different groups such as carbohydrates for energy. Proteins for muscle and fat for the glands.

A **micromolecule** is a small organic compound that bound together to form macromolecules

Some examples of micromolecules could be vitamins, minerals, sugars, or amino acids. This micronutrients bound together to form bigger molecules such as proteins.

Before talking about the structure of a protein we have to first understand **what a protein is...**

Proteins are a compound of amino acids that are responsible for the structures and functions of organisms. As mentioned these proteins are a compound of amino acids that are linked together to form a polypeptide chain. Each amino acid is linked to another by peptide bonds.





**PROTEINS
FUNCTIONS**

**PROTEIN
SYNTHESIS**

**PROTEINS
IN FOOD**

PROTEINS

During this chapter we are going to talk all about proteins, different aspects are going to be clarified and explain.

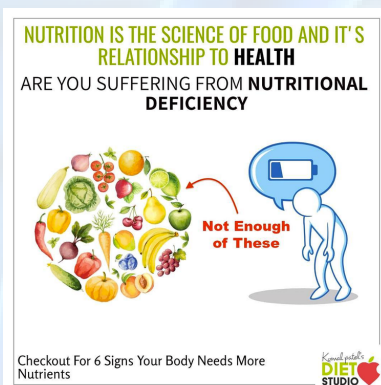
Let's start by talking about the functions of proteins in our body. Why are proteins important? Proteins play an extremely important role in our body and have different roles daily. Proteins **transport** things like blood and iron around the body. They also have an important role in the **immune system**. They also have an **enzymatic role**, every enzyme has complex proteins that produce different chemical reactions in your body. They also decompose different foods so that the body can utilize them. When the body does not have in-off energy, proteins are used as an **energy source**. Finally, they have a **structural role**, maintaining everything in place.



There are two types types of proteins, some that have a high biological value, and some that have a low biological value. The ones with a high biological value have a natural origin, they have a higher digestion time, and they have the 9 necessary amino acids The low biological value ones have a minor percentage of absorption, and they have higher digestion, many times they don't have all the necessary amino acids. They have to be complemented with other foods to give your body all the nutrients it needs.

Proteins have many rolls in your body and play a very important role in our daily basis, so what if you are having a protein deficiency?

When people have protein deficiencies they are most likely to have symphoms such as excessive or cronic fatigue, they get sick in an easier way, they loose muscle and strenght, people feel weaker and hair starts to fall, they may also show digestive probelms.



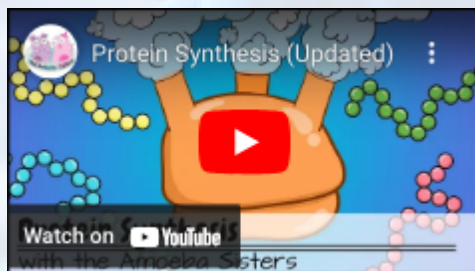
WHAT IS PROTEIN SYNTHESIS?

Protein synthesis is the process by which proteins are synthesized, or created. This process occurs inside the cells. This process is divided into two main parts, transcription and translation.

It's important to know that DNA is found in the nucleus of the cell, DNA cannot leave the nucleus. This is why during the transcription part of the process, RNA polymerase unzips and closes the DNA's double helix while reading base by base to make a new complementary strand that's called messenger RNA, this mRNA will be able to leave the nucleus of the cell and move to the ribosome where the process will continue.

The mRNA moves through the cytoplasm until it gets attached to a ribosome. In the cytoplasm, we find transfer RNA, this tRNA contains a set of anti-codons and an amino acid. Once the tRNA has an amino acid, the anti-codons are attracted to other complementary codons found in the mRNA. tRNA's start to get attracted to the mRNA taking the amino acids with them. The amino acids of the tRNA start to connect to each other with peptide bonds. It's important to know that there are initiation and closing codons that give the message when the protein is already done. The tRNA starts leaves the amino acid behind and goes to search for another one to continue doing the process. Once the closing codon is reached, the protein is now created. This process continues again and again, constantly producing this important molecule.

If you want to learn more about the topics we invite you to see the following videos.



PROTEINS AND FOOD

There are different ways you can receive proteins. The way you eat has a great impact on the amount of nutrients you receive. As mentioned before foods with a high biological value such as meat or chicken will give your body all the 9 amino acids it needs. This nine amino acids are the ones that the body does not produce by itself.

However, there are many variables that impact the amount of nutrients that you receive. This such as the precedence of the food, the way it's treated, the way it's cooked, and the amount of processes it has directly impacts the nutrients it can provide. It's not the same a mac McDonald ultra-processed burger as an organic piece of meat.



INTEGRAL HEALTH

PHYSICAL-MENTAL-SPIRITUAL

Integral health might not seem related to proteins, and nutrition but in reality, they are completely related. Before moving in what is the relationship we have to first identify the definitions and understand what we are talking about. Mental health includes our emotional, psychological, and social well-being. It affects how we think, feel, and act and according to Dr. William Glasser, it is a matter of choices. Physical health can be defined as the normal functioning of the body. Representing one dimension of total well-being.



What is choice theory? all we do all our lives is behave and is that we choose our behavior in an attempt to meet one or more of the five basic human needs that are built into our genetic structure.



“We are what we eat” The way we eat has a complete impact on our integral health. In the physical health, the relationship is more notorious. When you don’t have a balanced diet your body might not be receiving all the nutrients it needs to work in the correct way. This has a direct in your mental and emotional way. As mentioned in the previous chapter a bad diet might cause you to feel weak. It's important to be balanced and never reach any of the extremes. Eating a lot is bad, and not eating is also bad.

Fun fact: There is no perfect diet for anyone. People are all unique. Subtle differences in genetics, body type, physical activity, and environment can affect which type of diet you should follow.



You must be careful to maintain good integral health. If you are emotionally bad you can choose to eat a lot or not eat, generating a huge unbalance in your health. There are tons of factors that can affect you. This is why you have to put yourself first and maintain good health. For adolescents it is important to think about the future. Many things that we do know can have a terrible impact in the long run. Having long periods without eating or having an unbalanced diet could cause us digestive problems in a couple of years. This is why we have to think about the future, exercise, eat well, and be careful to maintain good health. Social media has positive impacts but everyone has to be careful not to believe in different supplements or diets that seem magical but can harm you. Inform yourself before doing things that you might regret.

A top-down view of various fresh ingredients including pasta, tomatoes, mushrooms, basil, and cheese on a wooden surface. The ingredients are arranged around the central text, creating a border. The background is a light-colored wooden surface with a visible grain.

HEALTHY RECIPES

APPLICATIONS

The most important part of knowing something is to apply your knowledge to things that can help you or help others be better. After developing the recipe we moved to the investigative part of the project to understand everything that is behind food and nutrients.

LENTILS SPROUDS

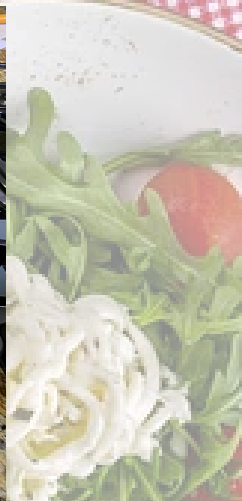
The basis of our project was lentil sprouts. We chose lentil sprouts because they have a lot of benefits. Lentils have a great nutritional value. They contain all the amino acids the body needs. Sprouts are very nutritious. They may also offer a variety of health benefits, including easier digestion, improved blood sugar levels, and a lower risk of heart disease.



RECIPE: WOK RICE

Ingredients:

- Chicken
- Lentil sprouts
- Olive oil
- 1 egg
- Rice
- Carrots
- Soy sauce
- Salt
- Onion



WATCH THE VIDEO AND PICTURES





Resources:

(Basis of choice theory. Choice theory basics. (n.d.). <https://lo.unisa.edu.au/mod/book/tool/print/index.php?id=454028#:~:text=Choice%20theory%20is%20an%20explanation,built%20into%20our%20genetic%20structure.>

Co, roozaneh. (n.d.). The nutritional value of sprouted lentils: Benefits and potential risks. LinkedIn. <https://www.linkedin.com/pulse/nutritional-value-sprouted-lentils-benefits-potential-roozaneh-co#:~:text=They%20are%20also%20easy%20to,variety%20of%20meals%20and%20snacks.&text=Sprouts%20are%20very%20nutritious.,a%20risk%20of%20food%20poisoning.>

Loudoun Sports Therapy Center. (2021, August 17). Fun facts about nutrition. <https://loudounsportstherapy.com/nutrition-facts-health-81021/>

Research guides: Health & Wellness: Physical health. Physical Health - Health & Wellness - Research Guides at Virginia Wesleyan University. (n.d.). <https://guides.vwu.edu/c.php?g=20994&p=122669>

Science, A. (2018, December 18). Lentil nutrition: Do lentils contain all 9 essential amino acids?. The Amino Company. <https://aminoco.com/blogs/nutrition/lentil-nutrition-essential-amino-acids#:~:text=The%20Verdict,other%20proteins%20in%20the%20meal.>

Vitello, P. (2013, September 5). William Glasser, 88, doctor who said one could choose happiness, is dead. The New York Times. <https://www.nytimes.com/2013/09/05/us/william-glasser-88-psychiatrist-who-promoted-mental-health-as-a-choice-dies.html#:~:text=Dr.,personal%20therapists%20died%20on%20Aug.>