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## Nutrition and lifestyle - The lifestyle therapy in young

**Prof Lucini:** Thank you, thank you very much for this kind invitation and good afternoon to every, everyone. Today together, we will speak about the lifestyle and the importance of lifestyle in cancer management. Obviously, life cancer can change our lifestyle, can worsen our quality of life, but what is much more important is that lifestyle can be an important tool to improve the prognosis of cancer into avoid some cancers. Obviously, when we speak about the benefit of lifestyle, we need to remember that the benefits go further to the physical well-being. Obviously, we can have some physical well-being, but the benefits are also psychosocial and social. And what is important to remember is that when a person or a woman after breast cancer is actually in a very difficult psychological condition and lifestyle, and to take care about your lifestyle may represent an important tool to restart your own life. Please, look at this picture. This picture shows how lifestyle or unhealthy lifestyle may improve our life expectancy, both in people with or without multimorbidity. So, we may have an enormous advantage if our lifestyle is a healthy lifestyle. Generally speaking, about the lifestyle, about the healthy nutrition, physical activity, people say, okay, this is very important because these things may prevent or may improve prognosis of many diseases. But what is important to remember that a lifestyle may improve your wellness in the precise moment in which you are dealing with your lifestyle. But coming back to cancer and breast cancer, we know that many are the situations that we needed to consider, and tobacco and tobacco smoking perhaps is one of the much more important things that can increase the risk of cancer. But don't forget about obesity, about alcohol, about the quality of nutrition and about physical activity. If we put together all these things, we see how lifestyle is so important, but the question is how is it possible that our lifestyle, so nutrition, physical activity, to stop smoking, to manage stress and so on, may influence cancer or in general chronic non-communicable disease. We need to remember that we have three important mechanisms. The first one is that the lifestyle may have an important influence on genetics. So, what we call epigenetics. So, the possibility that nutrition, physical activity may change something in our gene, think about DNA methylation and so on. Another important mechanism is that lifestyle may interfere with the control mechanism of our body, the autonomic nervous system, the immunity, inflammation, and endocrine system. And speaking about the breast cancer, we know how inflammation, our hormones are so important in determine the cancer. And last, lifestyle may change our behaviour. When we speak about behaviour, we see risk factors for diseases. We think about weight and so on. All together these things may act on cancer and chronic non-communicable disease, but we have to say that a healthy lifestyle may improve the prognosis of disease or avoid the disease, but an unhealthy lifestyle may increase the risk or worsen the prognosis. And remember that you can ask questions and send comments in any time. Look at this picture, this picture represents a recent paper that shows an association of leisure time, physical activity and cancer. And the increasing level of physical activity is associated with a lower risk of cancer and not only of breast or colon cancer, but of a lot of cancers. So, a physical activity may represent a real tool to prevent or to manage cancer. Another important issue is that okay, but physical

activity, but when is it important to perform physical activity? Before or after diagnosis? So, physical activity may be important, an important moment. So, to be physically active represents a tool to avoid or reduce the risk of cancer. So, in primary prevention, but also, for secondary prevention, it means that we have a patient, a sedentary patient who develops a cancer, he or she will start to perform physical activity, she may do a lot of things to reduce the risk and to improve the prognosis. And what about body-mass index, the weight? So, body-mass index or better the composition of our body, the fat mass and the lean mass are so important in determining the prognosis. Both the risks to develop a cancer and the possibility to change the prognosis for a lot of cancers, like is shown in this slide. Then, there is no doubt that lifestyle, particularly, stop smoking, physical activity and healthy nutrition are a mandatory, we may say, tool in the management of a cancer patient and to avoid cancer. The problem is, but which kind of physical activity? Which kind of nutrition? And how I can help my patient to change her or his lifestyle. Here, there is a slide from the American Cancer Society Guidelines for Diet and Physical Activity. And which are the main recommendations? Are very simple, sometimes a patient or a doctor ask me, okay, which is the element, the nutritional factor that I need to eat in order to avoid cancer? Which is the specific physical activity? Is not so difficult. Here we can see the main things. The first thing is to achieve and maintain a healthy body weight. So, to have a healthy body weight is the first important thing. The second one is to be physically active, then, to have healthy eating patterns, it's not a condition of a specific food. The eating pattern is what is really important and at the end is, when possible, not to drink alcohol. I told you before is important not only to know which is the best nutrition, the best physical activity, is to help our patient to change lifestyle. We think, we speak about lifestyle therapy or exercise therapy, and like every therapy, lifestyle, nutrition, exercise need to be prescribed considering a single patient, considering his or her characteristics. So, the first step is the assessment of the patient and the assessment of the clinical condition but also, the assessment of lifestyle, the assessment of risk factors and so on. Then, this point is of paramount importance, is to define a specific goal. Like when we went to prescribe normal drugs, before to prescribe drugs, we need to have a correct diagnosis and to have a specific goal, as the same is with the lifestyle or nutrition and physical activity. Why I want to use exercise for instance? To reduce fat mass, to improve muscle, to reduce physical pain, to manage the side effects of some drugs and so on. Then, we may prescribe a precise programme, a tailored programme, and then, we have to administer the programme like normal drugs. So, physical activity is the first things. Generally, people say that physical activity is important to reduce weight. Yes, it's important for this, but don't forget that the benefits of exercise actually go further the simple weight reduction. We may have a lot of important other benefits. And speaking about breast cancer patients, we need to know that the benefits may be different from a specific [Audio Not Clear] of the cancer. So, we have a continuum that goes from the detection of cancer to the treatment and to survivorship. So, when in the period of detection of cancer, physical activity is important for prevention, for primary prevention. And also, to reduce the risk of other pathological conditions, diabetes, ischemic, cardio disease, and so on. If we have a cancer patient, physical activity may be important to improve the prognosis, may be important to manage some side effects of chemotherapy, radiotherapy over other adjuvant therapies. A particular important role of physical activity is in long-term survivorship. Here, physical activity really represents an important tool not only of the prevention of relapse, but in order to ameliorate the long-term adverse effects from therapy and to improve the well-being, even when we are in a final stage, or if the cancer patient may not be considered a survivor, physical activity may be important to enhance a drug tolerance, to promote the efficacy of treatment and to promote a general well-being. But which kind of physical activity? Here we can see some features from the World Health Organisation Guidelines. The first thing is to reduce sedentariness. We need to work to two parallel roads. The first is to reduce sedentariness, to keep every possibility to move, not to stay seat, to walk and so on. And in parallel, we need to increase a specific exercise. And what is a specific exercise? Guidelines say that we need when the goal is to reduce total mortality. When the goal is to reduce the risk of cancer or to improve the prognosis, we need aerobic and physical activity. What aerobic can do? This means to walk and to run, to go on the bike, to swing, all the physical activity that moves all the body, that is aerobic, aerobic means when the muscular cells use all the oxygen to produce energy. And sometimes, it's not so easy to define this

point, this is one of the reasons because we need to actually prescribe physical activity. Generally, when we prescribe a moderate physical activity, moderate is like a brisk walking, for instance, we are sure that this is an aerobic. And we need a dose from 150 to 300 minutes of this activity along the week. This is important because in this range, we may have the best benefits with a low-risk, because we don't have to forget that physical activity or exercise is like drugs. So, drugs mean poison. So, we may have some risks and the risks are linked from much more a cardiovascular point of view, or muscular point of view. And if the intensity of the exercise is too much, is much more easy to have some problems. So, this is why is important to assess our patients and to actually prescribe a good dose of exercise. It's important to remember that this recipe is okay to prevent and manage cancer like the same for diabetes, cardiovascular disease and so on. So, when we are working on cancer, in the same time, we are working for other conditions, for other pathologies. So, when the goal is the reduction of cardio-metabolic, oncological risks, the reduction of fat mass, aerobic and endurance exercise is the best. And when we want to improve muscular strength, we need some different modality of exercise. For instance, we need strength exercise, and when we need muscular relaxation, when we want to reduce the pain of the muscles and so on, we need flexibility. So, stretching exercise. It's important to consider our patient, again, this counts because a fat lady is very different from a very lean one. So, we have to consider all these aspects and remember that you can ask questions in any moment. What about nutrition? Speaking about nutrition and cancer, there is a lot of things. And I think also a lot of confusion. Don't forget that the main message regarding nutrition is that we need to manage overweight and obesity. So, the first goal with nutrition and also with exercise is to help a healthy weight or better a healthy body composition, consider both fat mass and lean mass. So, we have to reduce in case fat mass, and we have to maintain and sometimes increase muscles. And this is a very, very important point. Look at this slide. It shows as some different nutrients, alcohol, dairy products, fluids, whole grain and so on. This is an umbrella review of a lot, a lot of papers. And the main message is that alcohol is not good for our health. So, if we want to avoid cancer, we have to reduce as much as possible the assumption of alcohol, then a little bit of dairy product for some cancers is okay, reduces the risks, and fruit, vegetables, and whole grain are the main things. So, we need to speak about patterns and patterns means not to point our attention on single micro, macro-nutrients, but to consider all together what we eat. Here, a clear exemplification. This is what we call Healthy Eating Plate. It means that in all our day, we have to imagine our nutrition like in this plate. So, half of our plate is with vegetables and fruit. So, the importance for fruit and vegetable is actually very, very high, it means the antioxidant benefit and the benefit of the weight. The other half of the plate is fit with whole grain and healthy protein. What are healthy proteins? Healthy protein means legumes, fish, white meats, it means to avoid red meat. And in particular, what we call all the meat that are pre-prepared, all the meat that contains a lot of salt, a lot of products in order to maintain this. The other part is important is regarding whole grains. So, if we had to summarise a healthy nutrition pattern in oncologic field, here, what it means? A healthy eating pattern includes food that are highly in nutrients that help to achieve and maintain a healthy body weight. I want to stress this concept because it's very, very important. We need a variety of vegetables. We need fruits, we need whole grains. We need white protein, we need fish. We need legumes. And we need to limit red or processed meat, sugars, sweetened beverage, generally, high-processed food and refined meals. But if we look at these rules, this is an arrow on as it appears on guideline in circulation. So, regarding cardiovascular and cardio-metabolic health. The same message. So, a nutrition that is good for a cancer patient or to fight cancer is the same to fight cardio-metabolic disease. And this is a very, very important concept. So, a little slide dedicated to the consumption of ultra-processed food and the risk of cancer, because there is a clear link between ultra-processed food and cancer. What is ultra-processed food? Is food that contains a lot of additives, a lot of contact with other materials or neo-formed contaminants and we may have ultra-processed food in a sugary product and drinks, instant food in breakfast things, or in ultra-processed food and vegetables or in ultra-processed meats, in every kind of our nutrients. So, don't forget that the simple things, not processed things are the best for our health. What about the meat? In cancer, meat sometimes is seen like a fault, so, red meat, it's okay if we avoid red meat is a good thing for our health, but we need white meat. We need fish, we need proteins in general. Here you observe like water intake and

fish intake can reduce the mortality for all-cause mortality and also, cardiovascular and cancer mortality. Now what about carbohydrates? Here, if your... the energy that you need in your life, derives from carbohydrates in a higher percentage, the relative risk of total mortality increases, and this is another important thing. So, we need a pattern of healthy nutrition that consider proteins, consider carbohydrate and we need to point our attention on the quality of the protein. So, no red meat. But yes, white meat, yes, fish, yes, legumes and so on. And we need also carbohydrates, but we need not a huge part of carbohydrates and we need particularly not-refined carbohydrates and we need whole-grain carbohydrates. And what for fruit, vegetables, and legumes? So, there are a lot, a lot of papers, a lot of guidelines that show us like the presence in our nutrition of legumes, of fruit, and vegetables reduce the risk of all kinds of diseases and improve our life, reduce cardiovascular mortality and reduce non-cardiovascular mortality as even cancer mortalities. So, in conclusions. Lifestyle intervention is important in the first-line to foster wellbeing, to stay in a good condition now. And it's important to prevent and treat simultaneously a lot of diseases, cancer, and also, cardiovascular and metabolic disease. What is important is that we need to consider our single patients, to assess the patient, to see together all the risks of these patients or all the diseases that we need to manage and to prescribe a lifestyle programme considering stop smoking, considering health and nutrition, considering physical exercise, and when possible, also considering stress management. In this way, we may help our patient actually in very, very important things. Another important concept to consider that lifestyle is not something against drugs, against surgery and so on. Lifestyle is not an alternative therapy, lifestyle is a therapy, just close together, a chemotherapy, adjuvant therapy, and what other kinds of drugs. They help together to reach the goal that we want to reach. So, the well-being for our patient, the management of our patient, the reduction of the risk to develop cancer and the possibility to manage a cancer patient in a best way. Here some examples of our normal clinical activity because it is possible to help our patients to change their lifestyle. This is a paper of our book that studies some breast cancer patients at the moment when we encounter these patients for a lifestyle programme and to see how is different the condition considering the level of physical activity. So, breast cancer survivors who meet the current physical activity recommendation, which I showed you before, present, not only a reduced fat mass, a reduced waist circumference but also, a reduced stress perception and also an improved autonomic nervous systems control. And what about a group of cancer patients who decided to change their lifestyle? Here, before and after one-year of intervention with the nutrition and physical activity. Look at reduction in heart rate, improvement in autonomic nervous system control, reduction in fat mass, improvement in the quality of nutrition, obviously, an improvement of physical activity to become physically active, being before sedentary and a reduction of stress performance. So, I hope that this, I think, simple presentation may convince you that lifestyle, healthy nutrition, physical activity, stop smoking and stress management may be a real tool, a real tool to help our cancer patients. The second message is that physical activity, nutrition needs to be prescribed exactly like drugs. And physician needs to have an important role in this. You, like oncologists, in my opinion, need to have information regarding this. And you may prescribe physical activity and nutrition and if you think that is not possible for you, you can send the patient to another doctor that can help you just doing this part because physical activity, nutrition, if used in a right way, can actually help our patient in a way that cannot be imaginable. If you don't try to use it with your patient. And don't forget that when a patient can come back to her normal life or sometimes, to be better than before, this is not only important to reduce the risk of cancer to improve prognosis, but is also important to restart living. Thank you very much for your kind attention.

**Dr Giovanelli:** Well, good evening to everybody who has taken part in this session. Thanks for the invitation, I am Luca Giovanelli I'm an endocrinologist and PhD student from Milan with a project in the field of exercise and lifestyle medicine. First of all, I want to say a massive thanks to Professor Lucini for her great talk. I would say, her brilliant presentation, addressing, or trying to address such an important topic. So, discussion is open. Actually, I don't see any questions at the moment. Maybe, everything is clear or anyway, you can ask questions in the Q&A section. And meanwhile, I would've a few questions, if I can. So, Daniela, you talked

about exercise prescription in breast cancer survivors, but my question is how can I personalise that? I mean, in particular, should I consider and how should I consider patients' conditions and fitness level before cancer?

**Prof Lucini:** This is a very, a very important call because you may have very healthy patients, or [Audio Not Clear] patients with cancer. So, the level of physical fitness of our patients needs to be considered, but we also need to consider the level of physical activity in the moment in which we are assessing the patients. And the best way is to perform some tests like a cardiopulmonary exercise test, or just simply to ask our patient about the dose of physical activity performed in the moment that we are assessing the patient. And before the cancer. I think that the best thing is to start from the beginning. Even you have a patient who was an athlete. So, I say to the patient, okay, re-start again from the beginning, re-start to move yourself. We prescribe a very easy programme and perhaps, after one-week we make change, we made a progression forward a programme that can be much more personalised for this patient. So, an important concept is what we call the progression of the prescription of exercise. It means I start from an initial level and then, I can increase the steps of the physical activity. For instance, we may start with a normal or a small dose of physical activity, just asking our patient to go outside every day and to walk for half an hour. When the patient says "okay, it's too easy for me." Then, we may arrive to prescribe a personalised programme, considering the physical activity level and arriving also to prescribe what you call a heart... a training heart rate. And we perform some physical tests or a cardiopulmonary test and using the number, the results for this test, we may indicate to our patient the heart rate that she needs to follow during exercise. Another important thing, like we were telling before, is that is important to consider the stage of the cancer, because it's completely different when we are working with a healthy lady to prevent cancer. And we are working with a lady during a chemotherapy period, or when you are working with a woman on neoadjuvant therapy, don't forget that hormonal therapy may have a lot of side effects, and we need to manage these side effects. Thinking about the increasing in the weight, think about a dyslipidaemia, thinking about some pain, muscular pain. So, we need to consider this when we have to prescribe our physical activity programme, what it means there, it means that for instance, if I want to manage some muscular pain, I need to introduce also some stretching or on the contrary, we needed to use again, aerobic physical exercise. But if I have a patient that cannot move herself, because I have a lot of pain, I have a lot of difficulties in moving myself. I need to start from an initial level to have this patient to take care about their muscles, and nutrition is also important to this point. Because we need to be sure that our patient has a normal lean mass.

**Dr Giovanelli:** Right, great, yes, very clear and complete answer and right regarding nutrition, the diet pattern you talked about, we can say is specific for cancer survivors or can have wider benefits?

**Prof Lucini:** Thank you, this is another important question regarding nutrition and cancer. Sometime there is a lot of confusion. A lot of patients ask me, okay, which is that specific food that I need to avoid to improve my prognosis, or in the country, which is the specific food that I need to eat in order to... and so on, regarding cancer. And sometimes, I tell to this patient, okay. But do you need a nutrition to avoid cancer without considering diabetes, myocardial infection or another disease? Oh no, no doctor, I need something complete. This is a main message. When we want to prescribe, to counsel some nutrition attention, we need to consider all the patients and all the possible diseases and goals. What is important that a healthy nutrition for cancer is also the same healthy nutrition for cardio-metabolic diseases. So, it's very easy. There is one healthy nutrition. The principles are the same for everything. And don't forget that the first things that we need to reach, the first goal is to normalise the body composition of our patients. If our patient is an obese patient or an overweight patient, this is our first goal. We need to decrease fat mass and we need to maintain lean mass. So, the nutrition pattern that I showed you before, is what we need to reach this goal and summarising this, we need a lot of fruit and vegetables, but we need to be sure that the single specific characteristics of our patients are okay, for instance, for this sentence. If we have a lady with some bowel disease to increase the quantity of fruit and vegetables, sometimes, may not be an easy situation. So, we need to balance these two things. The other important goal is to avoid ultra-processed food of any nature, from meat, dairy, fruit,

vegetables, carbohydrate, and so on. And what I call the quality of our nutrition is another important goal, particularly, for cancer, but not only. The third principle is to have enough quantity of healthy proteins, avoiding red meat, ultra-processed meat and having white meat, fish, legumes, and seeds. This is very, very important. The other is not to have a lot of carbohydrates. A huge quantity of carbohydrates are not healthy because they increase our weight, and if they are ultra-processed may have some other problems. So, we need to balance the quantity of carbohydrates and we have to prefer whole-grain carbohydrates. And at last, don't forget the importance of water to have a good quantity, one litre is not enough. One litre and half, two litres every day is a good quantity.

**Dr Giovanelli:** Right, so, very useful and precious recommendation, I think, for our audience. And lastly, I mean, you have already mentioned that, but I think it's very important to stress and point it out again, regarding the role of healthy lifestyle in the cancer prevention. Can healthy lifestyle so have a role both in primary and secondary prevention of breast cancer and any kind of cancer?

**Prof Lucini:** Yes, yes, this is another point, it's very important and we have a lot of data from literature. They show us that lifestyle may have an important role in all the kinds of prevention. So, in the primary prevention. So, when the patient is free from cancer and in secondary prevention, when the patient is a cancer patient that wants to improve her or his prognosis. Sometimes, when I work with a cancer patient or in particular a breast cancer patient, I found that these women are actually wonderful patients. I think that breast cancer patients sometimes are the patients that I prefer, I can say, because they actually want to follow you, want to change their lifestyle. The problem is that when you are in primary prevention is difficult to find really people that want to follow a healthy lifestyle. An important data that we have, for instance, is that the young people when primary prevention is so important, sometimes, have a worst lifetime as compared to adult people. So, with young people, with children, with adolescents, with the young adults, eat well, we need to walk much more in order to improve their lifestyle. Because is there that lifestyle represents a major tool to change their life or to change their risk to go towards some diseases. Now, we say that a lifestyle is a sustainable tool. What it means? Generally speaking, about sustainability, we relate this concept to the planet. So, to do something now to preserve the resources of our planet that may not be present in the future, if we continue to believe, to behave in this way. The same concept is for our health. Lifestyle it means to act now having a healthy lifestyle to be physically active, to have healthy nutrition, may represent a sustainable tool in order to preserve an important thing. That is our health, that in the future may not be present if we continue to have an unhealthy lifestyle. And what is much more important is that lifestyle is not only to prevent in the future some things, to prevent disease. Patients say, okay, to prevent cancer. I am a young person, the cancer is for older people, no, cancer is also for you, but what is very important is that the lifestyle helps you to be in good condition now to promote your wellness now. So, you may have an immediate benefit. So, what is better? There's something that grant you benefit now and benefit in the future? Thanking your past.

**Dr Giovanelli:** Yeah, so, we can say the earlier the better.

**Prof Lucini:** Yeah, sure.

**Dr Giovanelli:** Although, it's not easy to convince young people and not only young people to improve their lifestyle, but this is the message.

**Prof Lucini:** Sure.

**Dr Giovanelli:** Yeah. So, right, no more questions from me and no questions from the audience. So, I think if you agree, we can stop here.

**Prof Lucini:** Sure, sure.

**Dr Giovanelli:** So, thanks again, Daniela. Thanks again to all the participants and goodbye. We can, if you would like to add anything.

**Prof Lucini:** Just allow me to thank everyone who stayed with us in this afternoon and to thank a lot ESO for this kind invitation.