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**Experiences with the Use of Dietary Therapy  
in Surgical Oncology**

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**SUMMARY**

In the following we present a dietary regime that has been used for six years by our cancer patients.

The basic principles of this therapy are the following:

- hyper-alimentation based on lacto-vegetarian wholefoods
- the strictest reduction of salt
- adequate supply of fluids, vitamins and trace elements through fruit juices
- coffee enemas.

The observed effects are presented as case reports and as the preliminary results of comparative studies. It can be seen that the patients treated with the adjuvant nutritional therapy are in a better general condition, with less risk of complications, and they also tolerate radiation and chemotherapy better than patients who do not follow the diet. To what extent nutritional therapy yields benefits with regard to the basic disease process and to life expectation will have to be established over a long period of time by studying a larger number of patients.

## INTRODUCTION

By nutrition we understand the optimum supply of food that is able to guarantee the material and functional requirements of the organism (1). In addition, H.Kasper (2) defines diet as food designed to exercise a prophylactic or therapeutic influence on metabolism and organ function. Corresponding to this lofty claim, a large number of "cancer diets" are widely recommended. However controversial these may be individually, they fulfill the patient's need to contribute actively to the alleviation or cure of his disease (3). 1 The patient's wish to do this is only too understandable, and therefore it is the duty of all medical practitioners working in oncology to explore the question of nutrition and cancer. This is necessary if only to prevent the patient from seeking the help which orthodox medicine has not given in the field of alternative medicine, where he may not only be advised to follow diets harmful to health but may also be deprived of the opportunity of obtaining a prognosis through conventional methods which are, as a rule, uncompromisingly rejected by the alternative camp.

However, militating against the demand for doctors to provide guidance in nutritional therapy is the fact that, to date, the connection between cancer and nutrition can only be assumed but not clearly formulated (2). This grave lack of knowledge has a number of not easily eliminated causes:

Eating, complete with faulty nutritional attitudes, represents for the patient a cherished habit which he may often be reluctant to change. Even after time-consuming explanations by the therapist, the relevant patient compliance remains a limiting factor which can hardly be controlled in an outpatient setting.

Even though the biochemical processes of metabolic action are increasingly understood, the complexity of the connections makes it impossible to establish the steady, constant working conditions for the testing of dietary measures that are required for exact studies (2). Therefore, at present, nutritional medicine rests largely on the twin foundations of observation, including diagnosis through imaging, laboratory tests and subtle biometry, and of experience (4).

The running of controlled studies is bound to fail, not only owing to methodological difficulties but also because, on the one hand, no patient can be forced to follow nutritional guidelines, and on the other because advice

cannot be withheld from cancer patients in search of guidance. Thus any kind of random trial becomes impossible. This, and the lack of homogeneity among cancer patients does not allow any statistical evaluation of our findings.

Last but not least, our understanding of the origin of malignant disease is too incomplete for us to believe that we can intervene in disease-caused metabolic processes through dietary therapy. To quote Vincent T. De Vita, former director of the NHI, "What we write about cancer fills several libraries; what we know about it can be written on a visiting card." This aphorism, coming from a highly qualified source, shows up the essential problems of all cancer treatments and thus also of nutritional medicine.

Fully aware of these difficulties, and also realizing that, as surgeons, we have only limited competence in matters of nutritional medicine, six years ago we nevertheless decided to introduce diet as an adjuvant measure to the multimodal therapy concept available to our patients. From the very first we wish to emphasize the term adjuvant, in order to express that we regard nutritional therapy as a complement, and in no way as an alternative, to orthodox oncological therapy (5).

#### **NUMBER OF PATIENTS AND METHOD**

The group of cancer patients in our Department of General Surgery is highly unhomogenous. The most frequent cancers are those of the gastro-intestinal tract and, among women, of the breast, but of course we also treat numerous other kinds of malignancy, of greatly varied location, tissue type and stage. The ages of the more than one thousand patients who are receiving regular outpatient care range from 20 to over 80 years old; female patients, with 254 cases of breast cancer among them, constitute a majority.

Unless the disease process, the patient's general condition or the discovery of metastasis dictates otherwise, the treatment protocols follow the guidelines laid down by the Working Group for Surgical Oncology of the Austrian

Surgical Association (6). Check-ups are carried out every three months during the first two years following surgery; every six months in the next three years, and then once a year for the rest of the patient's life. For patients on dietary therapy these intervals are halved, in order to allow for biometric and laboratory tests.

Quality control of the dietary therapy follows the parameters shown in Table 1; these are identical with the ones normally used in a surgical setting, too. Because of the previously mentioned impossibility of carrying out a randomised study, the present report can only rest on two foundations which can be attacked on methodological grounds:

- 1) We attempted to pair comparable patients, one of whom followed the dietary therapy while the other continued with his/her previous lifestyle, and to make straightforward comparisons. Applying the necessary strict definition to the criteria of matching up patients (age, sex, localisation and stage of tumour), the pairing was only successful in a few cases, despite the large number of cancer patients in our care, and this report refers to those cases only.
- 2) Cases where the course of the disease differed strongly from experience-based expectations are presented as special cases.

#### **THE DIET**

Our original therapeutic concept was based on the guidelines laid down in 1958 by the German-American Dr Max Gerson (7), the application of which we were able to study during a visit to San Diego, California. We put these guidelines into a form that allowed them to be put into practice in Europe, and translated them into German (8). However, as our experience grew, and as we became more acquainted with the results achieved by many scientists working in the field of nutrition both in Austria and abroad, we introduced far-reaching modifications which differ drastically from the Gerson method. In addition we carried out basic research, insofar as this was possible within the limited possibilities of a surgical department, especially in the area of the components of coffee. For the rest, we utilised epidemiological data which link the development of cancer with certain food components. The following examples represent a few of these:

- |                          |                                  |
|--------------------------|----------------------------------|
| Lack of bulky substances | - colorectal carcinoma           |
| Nitrosamines             | - stomach carcinoma              |
| Fats, cholesterol        | - breast, and ovarian carcinoma. |

We are aware that although all these findings are certainly relevant for the prevention of malignant disease, they may not be so for its treatment. And yet

we agree with Jungi (3), who advocates healthy nutrition for cancer patients within the framework of a generally healthy lifestyle. We understand this statement to mean that whatever is good for prevention is also right for therapy. The resulting basic rules of healthy nutrition are then changed, viz. complemented according to the patients' specific needs, in pursuit of a therapeutic goal. The treatment programme which we practise, while endeavouring to provide the minimal requirements of a cancer diet (5), (set out in Table 2), can be described as being basically an ovo-lacto-vegetarian, high fibre and high bulk wholefood diet.

The greatest possible avoidance of meat suits the nutritional attitudes of cancer patients. Thus we confirm unreservedly the observation of Ollenschlaeger (9), who noticed among his patients first an aversion to pork and beef, then to poultry, and only finally to eggs and dairy produce. The minimal need for amino-acids, at 1.5 g per kg of body weight per day must be filled. If despite this input, whose provision through food is the responsibility of an experienced dietitian, catabolism occurs, we substitute easily assimilable lactic protein (Meritene, produced by Wander). Prepared with milk, moreover being available in a great variety of flavours, this is easily accepted by patients even in advanced stages of the disease.

At least another 50 non-protein-based calories per kg of bodyweight per day are supplied, mainly in the form of carbohydrates which provide, in all, some 60 per cent of the patient's energy needs. This level of energy need arises from the increased nutritional requirement shown both by tumour and by host organism (9), and it can increase even more as a result of intercurrent infections or radiotherapy. Satisfying this need orally is not always easy, owing to the patient's reluctance to take in any nourishment on the one hand, and on the other because of malabsorption caused by the disease or its treatment. However, great attention must be paid to ensuring an adequate provision of energy to the patient, as a good nutritional status exercises a multifactorial influence on the course of the disease as well as on the success of the treatment. Thus every surgeon is aware of the fact that patients in a state of malnutrition are liable to suffer infective surgical complications and poor healing of wounds. Among such poorly nourished patients chemotherapists note severe side effects, especially with regard to the blood count, and also by way of a reduced immune reaction leading to recurrent infections. Moreover, the half-life of the cytostatics, needed for the success

of the treatment, can be shortened, which under the circumstances can lead to a not insignificant increase in the toxicity of these substances.

With carbohydrates we endeavour to abide by the rules of whole foods, as laid down by DGE, as far as possible. Unless morphological changes in the gastrointestinal tract prevent it, we prefer the use of wholemeal flour to that of the refined kind. And although the relevant data in the literature are contradictory (3), we recommend honey as a natural sweetener, rather than refined sugar. In this context we find greater constancy in blood sugar profiles and account for this by the fact that honey consists of a mixture of saccharides which the organism can swiftly utilise.

Some 20-25 per cent of the patient's energy needs is supplied by fats, which are also indispensable for the resorption of lipophile vitamins. We provide the daily requirement of approx. 1 g per kg of body weight mainly, but not exclusively, in the form of unsaturated fats, since very recently several investigations (10,11) showed that immune reactions on the cellular level were suppressed if subjects were fed exclusively on unsaturated fats. We hold divergent views on the use of the so-called "diet margarines": although we regard the high consumption of unsaturated fats as a welcome development, the lack of essential fatty acids in these diverse products could cause deficiencies in the long run. Following a personal communication, a team of researchers in Graz, conducting an as yet unpublished animal experiment, observed an increase of serum cholesterol in rats which were given only margarine by way of alimentary fat. The researchers formulated the hypothesis that this phenomenon represents the body's attempt to compensate for the exogenous lack of essential fatty acids. Concerning fats, if these are not already largely supplied by dairy products, we recommend cold-pressed oils and the moderate use of pasteurized butter.

As far as vitamins and trace elements are concerned, we reject anyone-sided emphasis on the subject, especially because none of the named nutritional components has so far been proven to possess the healing power which is ascribed to some of them by alternative practitioners. In our opinion a balanced lacto-vegetarian diet can easily cover the nutritional needs set out by the WHO. Although lately there has been increasing evidence to show (12) that Vitamin A and the retinoids can put cancerous changes into remission, their therapeutic application is not yet justified.

We pay particular attention to the need for an adequate fluid intake of approx. 40 ml per kg of body weight per day, especially when chemo- or radio-

therapy causes an elevated cell metabolism. In this way we can also guarantee the renal elimination of metabolic wastes during such treatment. The same applies to the danger of hypercalcemia syndrome in the case of osteolytic metastases. Partly in order to ensure the supply of vitamins and trace elements, partly also to conform to the wishes of the patients and to current thinking in the area of food reform as well as to increasing diet-consciousness, we recommend, beside herb teas, preferably organically produced fruit and vegetable juices. We must, however, emphasize our rigorous rejection of juice cures, such as the one advocated by Breuss (13). //Translator's note: this is a non-medically devised 42-day juice which excludes all solids and only allows a small daily amount of vegetable juices and herb tea.// In fact, in two cases, when patients undertook this "cure" against our advice, the sad outcome of the treatment was renal insufficiency leading to fatal uremia.

We have adopted the exclusion of salt from the diet as advocated by Gerson (7), although owing to lack of staff and equipment we are unable to verify whether the ,underlying hypothesis is correct. In our view the proposition made by Cope (14) and by Ling (15), according to which an intracellular accumulation of sodium could, by lowering membrane efficiency, diminish the stability of cell membranes and thus favour the mitotic division of tumour cells, awaits confirmation. Nevertheless, by excluding salt from the diet we were able to achieve good results among our patients in every case where fluid accumulation occurred as a symptom of the underlying disease. Thus the frequency of recurring ascites and pleural effusion can be reduced; likewise, the elimination of perifocal oedema in cases of intra-cerebral metastases lowers the pressure on the brain and as a result leads to a lessening of neurological side effects.

At any rate it should be noted that, especially in areas where struma is endemic, e.g. in Styria, iodized salt is practically the only source of dietary iodine. Therefore we watch out carefully for deficiency symptoms such as hypo-thyroidism and substitute the halogen, according to need, with iodine-rich mineral water or, in severe cases and when laboratory tests show deficiency, also with very small doses of Lugol's solution according to DAB (6).

In our dietary regime coffee plays a key role, both with regard to its effectiveness and to the critical comments against its use. Gerson (7) suggests that it should be administered in the form of enemas, and we have examined the rationale of this application as far as possible.

The two active ingredients which are introduced into the portal vein circulation are the esters Cafestol and Kahweol (Fig.1.) which were first produced in their pure form by Djerussi (15) in 1959, viz. by Kaufmann et al (17) in 1963.

In the unsaponifiable residue of coffee oil, both substances are present as glycerol tripalmitate esters, constituting together 18.5 per cent of total volume. The largest amount of these esters is obtained from green coffee beans (17), but they are also present, albeit to a lesser degree, in roasted coffee beans as well as in drinking coffee (18). We have produced Cafestol by using Beilstein's (19) simplified method, whose step-by-step procedure is given in Table 3, without exact quantities.

In animal experiments it was possible to prove that both di-terpenes are able to increase up to sevenfold the activity of Glutathione-S-Transferase (18). This group of enzymes, also known as ligandine, represents approx. 3 per cent of all enzymes to be found in the cytoplasm of the liver (20) and occupies a central position in the hepatic system of elimination:

- 1) GST binds bilirubin and its glucuronides, so that they can be eliminated from the hepatocytes (21).
- 2) GST is able to block and thus detoxify those carcinogens which need oxidation or reduction to be activated (22). The catalytic function (23) produces a protective effect against many chemical carcinogens (24).
- 3) GST forms a co-valent bond with nearly all highly electrophile substances, the so-called free radicals, which is the precondition of their elimination (21). The intermediary products of potentially hepatotoxic cytostatics also belong to this category.

These main qualities of the GST also explain the efficacy of the components of coffee which stimulate its production; we shall deal with this in more detail in connection with the results of our treatment. In a small and as yet unpublished series of experiments we were able to achieve a significant quantitative increase in bile flow in rats, by giving them Cafestol which we produced by the method described in Table 3. However, the continuation of these investigations is beyond our scope and should be reserved for the pharmaceutical industry together with a possible clinical test. As long as the substances under discussion, which, in our view, could make a highly effective drug for protecting the liver, are not produced industrially and no relevant studies are planned, we have to continue administering them in the awkward form of enemas. All the more so because patients cannot be expected to consume



the therapeutically necessary daily amount of at least one litre of coffee by drinking it, without risking side effects in the upper alimentary tract.

Table 4 summarises the basics of the dietary regime which we use as an adjuvant therapy.

#### **TREATMENT RESULTS ACHIEVED BY DIETARY THERAPY**

Special cases:

Table 5 sums up briefly the disease process of a woman patient, now 77 years old. Hers is the only case in our caseload in which we were able to observe a complete remission without conventional therapy. The patient's total freedom from tumours, established in June 1986 and verified by every possible imaging method, lasted for one year.

Even if we dare not interpret this remission as the sole result of the dietary therapy but consider the possibility of a spontaneous remission, we still believe that in view of the patient's advanced age and extended disease process, the remission and the patient's excellent general condition during and after the treatment can be traced back to the dietary therapy.

The case of the patient presented in Table 6 is basically similar, but in view of his comparative youth the oncologist-physician started him on a course of palliative chemotherapy. Right at the start of the treatment there was a dramatic rise in liver enzymes, which is a known side effect of Mitomycin C (25). After the liver enzyme status returned to normal, the chemotherapy was continued for one year, leading to a full remission which has now lasted for nearly four years. In this case the result of the treatment was undoubtedly due to the anti-neoplastic chemotherapy. However, the fact that this was tolerated without subjective or objective side effects, and that the extreme pathological changes in the laboratory test results, observed before the introduction of the dietary therapy, returned to normal and have remained so ever since, must surely to a large extent be the result of the subsequent dietary management which the patient is still following.

Figure 2. shows the profile of the liver function parameter of a patient suffering from malignant melanoma. After radical primary surgery, including the extirpation of the regional lymph glands, the disease metastasized into the lymph nodes. Upon this the dermatologist in charge of the case introduced Alpha-Interferon as an adjuvant therapy. The side effect of this drug,

according to the manufacturers, is damage to the parenchyma of the liver, and indeed this manifested in full measure in our patient, as shown in the laboratory data. Through the dietary therapy, introduced because of this damage, we were able to achieve a complete normalisation of the liver function, although the Interferon treatment was continued in the same high dosage.

The two increases of enzymes, especially that of Gamma-GT, in the further disease process mark those episodes when, owing to a worsening of his original complaint, the patient had to start another cycle of Interferon. Its administration always took place during a residential stay at a clinic where the patient was unable to continue with his diet or even with the coffee enemas. As soon as the patient was allowed to return home and resume his therapeutic diet, on each occasion it was possible to reduce the excess within a short time, even though the Interferon treatment was continued on an out-patient basis and thus the hepatotoxic effect remained. We regard this development, which has so far been repeated three times, as a result of the dietary treatment, since no other therapeutic measures were introduced that might explain it.

Another case worth reporting is that of a 42-year-old woman patient with diffused metastases after an operation for breast cancer. During ongoing chemotherapy intra-cerebral tumour nests were found which were causing symptoms of cerebral pressure with considerable neurological effects. The CAT scan showed several intramedullary metastases, each one surrounded by a collateral oedema. In view of the extremely poor prognosis and the progression of the disease during treatment, the chemotherapy was discontinued and the patient only given analgesics and neuroplegics by way of treatment. We introduced our dietary therapy even in this desperate case, more for psychopalliative reasons than on the assumption that it might help. In only four weeks the neurological symptoms diminished so much that we repeated the CAT scan. This showed a total disappearance of the collateral oedema, although the size of the metastases had remained the same. We believe that this change was due to the exclusion of salt from the food and to the resulting shift in the fluid levels. The patient died 8 months later owing to the progression of her uncontrollable disease, but without a single recurrence of her original syndrome.

#### **COMPARATIVE STUDIES - Matched Pairs**

The data shown in Tables 7 & 8 were obtained by comparing patients who were paired and matched according to the criteria set out above. Among our patients, many of whom suffer from colorectal carcinomas, this could be done in only 18 cases. Those patients who after the appearance of metastases in the liver agreed to go on the dietary therapy benefited from it to a measurable extent. The conspicuous difference, with a better life expectation of 28.6 months as against 16.2 months, can only be regarded as a trend. In view of the number of patients which is far too small to allow a statistically valid evaluation, it would be wrong for us to claim that life expectancy can be almost doubled solely by dietary therapy.

The woman patient, still alive after five years, constitutes one of the special cases dealt with in Table 5.

Table 8. shows a comparison between 38 female patients after surgery for breast cancer. Here we added to the oncologically generally accepted criteria for matching patients the receptor and menopausal status of the women. The patients were also accurately matched in terms of the adjuvant treatment, chemotherapy or radiation, which they were receiving. The observed advantages, enjoyed by those patients who were on the dietary therapy, are summed up in a simplified form in Table 8, since a detailed analysis cannot be accommodated in the framework of this survey. We should like to emphasize that although the patients following the dietary therapy obviously benefited from it, no significant difference can be seen in terms of metastases and rates of survival.

## FINAL CONCLUSIONS

After nearly six years of using adjuvant dietary therapy in conjunction with surgical oncology, we are able to report the following preliminary results:

- 1) Tumour cachexy which is inevitable in advanced stages of the illness can, in most cases, be prevented or at least significantly delayed.
- 2) Thanks to the generally good nutritional status of the patients, there are fewer post-operative complications when a second intervention becomes necessary; the same applies to intercurrent infections.
- 3) The subjective and objective side effects of radiation or anti-neoplastic chemotherapy are less marked.
- 4) Patients on the dietary therapy have significantly less need for analgesics and psychotropic drugs than the controls.
- 5) The psychological state of the patients is good throughout. This could possibly be due to a certain placebo effect. To determine to what extent
- 6) the slower progression of existing liver metastases, which we have observed, and
- 7) the less marked occurrence of malignant effusions can be interpreted as therapeutic successes of the dietary regimen, requires the further study of a larger number of patients.

However, the preliminary results reported above encourage us to continue and, within our possibilities, to intensify the use of dietary therapy measures, and we are seeking intensive cooperation with all those who are experienced in this - at present still highly controversial - area of work.

Table 1. Monitoring of surgical-oncological patients following the diet

Biometric Examinations	Laboratory Test Results
Body weight variation	Full blood count (haemoglobin and white cells) and
Thickness of skin fold (measured on inside of upper arm)	Serum: total protein and albumin
Circumference of upper arm and upper thigh	blood sugar (daily profile)
Body temperature (pulse and blood pressure)	cholesterol and triglycerides
	urea, uric acid, creatinin
	electrolytes and iron
	enzyme status
	Urine: sugar, ketones (optional: amino-acids)

Thorough physical examination also in respect  
of the basic disease

Table 2. Needs to be met by a "tumour diet"

- 1) Covering the energy requirements (60% carbohydrates, 20% protein, 20% fats)
- 2) Equalising the nitrogen balance with easily utilised protein
- 3) Supplying sufficient vitamins and trace elements
- 4) Putting minimal demands on the digestive system, with special regard to morphological changes caused by disease and/or by treatment
- 5) Speeding up the hepatic and renal elimination of metabolic wastes, products of tumour breakdown and cytostatic drugs
- 6) Providing sufficient fluids (40 ml/kg/day)
- 7) Overcoming the conditioned rejection of food by attractive presentation

Table 3. Preparation of Cafestol (Beilstein's simplified procedure)

Extraction of Soxhlet with ethyl ether  
Evaporation of ether in the Rotavapor = coffee oil  
Adding petrol ether and cooling to 4°C = crystallised caffeine  
Neutralising the residue with NaHCO<sub>3</sub> (5%)  
Adding H<sub>2</sub>O<sub>2</sub> and C<sub>2</sub>H<sub>5</sub>OH  
Another extraction with ether  
Drying and steaming the extract with Na<sub>2</sub>SO<sub>4</sub>  
Adding petrol ether and cooling  
Precipitation of the pure substance as Cafestol-Diacetat

Table 4. Fundamental factors of the adjuvant dietary therapy

1. Energy supply of 55-60 kcal/kg/day  
with 1.5 g amino-acids/kg/day  
1.0 g fat/kg/day, and additionally 50 non-protein-based  
calories, all in the form of
2. ovo-lacto-vegetarian wholefoods, with
3. protein substitution when needed (egg-based complete protein)
4. fruit and vegetable juices, teas, approx. 40 ml/kg/day
5. exclusion of salt (iodine substitution in cases of hypothyroidism)
6. coffee enemas

Table 5. Case history I.

C.G. F, aet. 70  
1982: resection of carcinoma of the sigmoid pT-3, G-3, N-1  
1984: OB-Sonogram: (possibly single) metastasis in right lobe of liver  
OB-diagnosis by Second Look. Multiple metastases, up to 7 cm  
in both lobes -----> laboratory tests

Start of dietary therapy

June 1986: OB Sonogram: no metastases  
CT: calcifications in respect of regressing metastases  
Lab. tests: enzymes, BSR and tumour markers within normal range  
complete remission

until 7th July 1987: since then slow progression of newly established liver  
metastases

6th July 1989: the patient enjoys subjective well-being  
biometric parameters show constant good nutritional  
status  
Lab. tests: BB, electrolytes and metabolic parameters  
within normal range  
Enzymes: Gamma-GT 386, otherwise within norm

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Table 6. Case history II.

G.W. M, aet. 46  
June 1985: Left hemicolectomy for carcinoma of the sigmoid pT-3, G-2, N-D, M-1,  
with multiple liver metastases  
July 1985: Start of chemotherapy with 5-FU and Mitomycin C -> dramatic  
increase of liver enzymes

Start of dietary therapy

2nd Dec 1985: CT: metastases microscopically calcified. Fatty degeneration  
of liver  
Lab. tests: all results within normal range, during chemotherapy!

To date: patient subjectively free from complaints and in full remission

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Table 7. Matched Pairs/Carcinoma of the colon with liver metastases (n=18)

<u>With dietary therapy</u>	<u>Without dietary therapy</u>
Liver enzymes normal (5)	up to 3.6 times above normal (5)
mean survival time	mean survival time
28.6 months (3)	16.2 months (4)
1 patient still alive after over 4 years	

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Table 8. Matched Pairs/Carcinoma of the breast in all disease stages (n=38)

<u>With dietary therapy</u>	<u>Without dietary therapy</u>
Minor progress of liver metastases (1)	Fast progress of metastases (3)
No termination of chemotherapy (0)	Termination owing to suppressed bone marrow function or LPS (2)
Minor subjective side effects	Massive subjective side effects
Manageable pain and no hypercalcemia syndrome in cases of metastases in the skeleton	Pain requiring opiate analgesia and diminished kidney function
Little hydrothorax and infrequent need for fluid drainage	Pleural effusion needing drainage twice as frequently

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Table 9. Benefits of the adjuvant dietary therapy (2) (Summary)

- Malnutrition/cachexy does not occur or is delayed
- Less frequent post-operative complications (wound infection, anastomose dehiscence, &c.) intercurrent infections
- Increased subjective and objective tolerance of radio- and chemotherapy
- Slower progression of liver metastases
- Fewer malignant effusions necessitating treatment
- Improved psychological state owing to the placebo effect

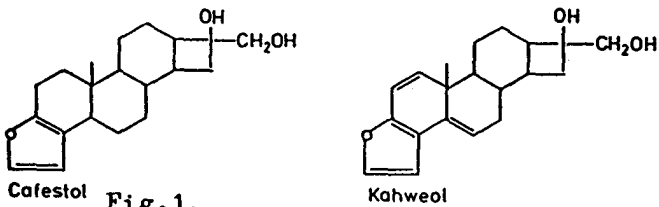
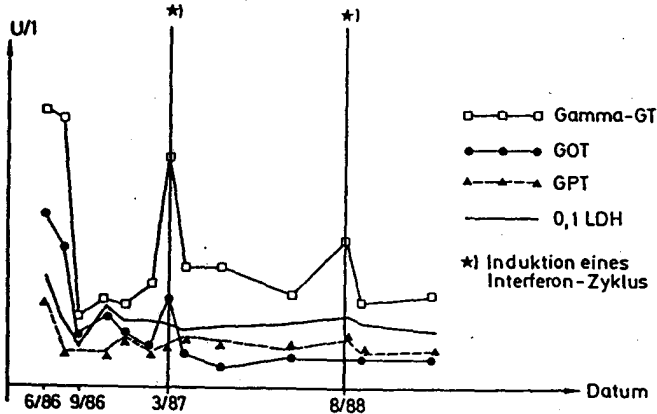


Fig. 1. Liver-protecting components of coffee

H.P., 47 a Fig. 2. Special Case III.  
Diagnose: Malignes Melanom



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