Effect of Arabian yogurt and white cheese on some physiological parameters of human

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Abstract
Arabian Yogurt and White Cheese is a popular food that contains various probiotic lactic acid bacteria (LAB). This study was conducted to evaluate the effect of Arabian yogurt and white cheese on some physiological parameters which have benefits to health of human. 75 volunteers were selected and divided into 3 groups the volunteers were given yogurt and white cheese every morning as a breakfast meal for (21) days. Blood samples were collected at the end of the experiment. The results in this study exhibited a significant decrease (P<0.05) in the volunteer weight, also in the concentration of serum cholesterol, Triglyceride, LDL-C, and VLDL-C, uric acid, and glucose, on the other hand significantly increased (P<0.05) in HDL-C concentration in the two groups, besides the study, relieved no significant decrease in Hb, PCV, and WBC. This study showed no significant variations in the urea of volunteers. The data indicated that Yogurt and White Cheese contains various LAB species that are potential probiotic candidates with health benefits.

Keywords: White Cheese; health; human; Physiological Parameters

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Introduction
Probiotics are friendly bacteria found in the mouth and intestines of healthy individuals. This microorganism help to defend the body against invading bacteria and yeasts. Probiotic bacteria contribute gastrointestinal health by providing a synergistic environment and producing health-promoting substances including some vitamins (¹). Over the past decade, the use of probiotic has generated renewed the as a potential method for the prevention of multiple gastrointestinal diseases as well as for providing benefits to the host and modulating immunological responses (², ³, ⁴).

Commensal macrobiotic, such as Bifidbacterium and Lactobacillus, both found in yogurt, many studies are indicating the positive effect of yogurt consumption on human health. In fact, frequent consumption of yogurt intake has been shown to improve risk factors for cardiovascular disease and lower diabetes risk, enhance the development of host immunity, lower the risk for symbiosis and chronic kidney disease (³, ⁵, ⁶, ⁷).

In Iraq that as became several chronic diseases such as cancer, hypercholesterolemia, diabetes militates, and the immunity depression disease which causes to infect the people at many pathogenic factors (⁸). In the last years, it has been looking for used additives probiotic such as bacteria, yeasts or molds (⁹).” Yogurt is considered as healthy food due to its high digestibility and bioavailability of nutrients and also can be recommended to the people with lactose intolerance, gastrointestinal disorders such as inflammatory bowel disease and irritable bowel disease, and aids in immune function and weight control (¹⁰, ¹¹).
Cheese is a rich source of essential nutrients, protein, bioactive peptides, amino acids, fat, fatty acids, vitamins and minerals. The high concentration of essential amino acids in cheese contribute to the growth and development of the human body. Despite the presence of a notable amount of saturated and trans-fatty acid, there is no clear evidence relating to the consumption of cheese to any disease. The high concentration calcium in cheese is well known to contribute to the formation and maintenance of strong bones and teeth, but also shows a positive effect on blood pressure and helps in losing weight in combination with a low energy diet. And these associations between the intake of dairy products and weight change different according to the type of dairy product and body mass status.

Our study aimed to investigate the effect of Arabian yogurt and white cheese on some physiological parameters which corrected with the health of humans.

**Materials and methods**

**Design of experimental**

In this study, 75 volunteers were selected and their ages were ranged between 20-30 y, were obtained from Mosul City. The volunteers were divided into 3 groups, each group included 25 volunteers. Group (Control) served as the normal control and administered drinking (100 ml tap water), Group (Arabian Yogurt) administered (100 gm yogurt daily), Group (White cheese) administered (50 gm white cheese daily), the volunteers were given yogurt and white cheese every morning as breakfast meal for a period of (21) days in the study, they were not permitted to consume any other probiotic dairy beverage all through the experimental period that expanded along between Jan/Feb, 2019.

**Blood samples**

At the end of the experiment 21 days, body weight was measured for each group under study, and blood samples were collected intravenous, then take approximately 2 ml of whole blood from each one and put in EDTA tubes containing anticoagulant for measuring some blood parameters. Moreover, collected 5 ml of blood in test tubes and leave for about 15 minutes at 37°C in a water bath, then serum was obtained by centrifuge at 3000 rpm and kept at -20 C in plain tubes for measuring some of physiological of parameters under study.

**Physiological parameters**

White blood cells (W.B. Cs), hemoglobin (Hb) and packed cell volume (PVC) measured by used automated hematology analyzer (Syamex model; K-1000, Japan). The kits were depending on clinical chemistry methods according to the manufacturer’s recommended procedures from Biolabo (France) to measure Glucose, Total Cholesterol, Triglycerides (TG), high-density lipoprotein –cholesterol (HDL-C), Urea and Uric acid. Whereas, Low-Density Lipoprotein-Cholesterol (LDL-C) calculated according to the Friedewald equation. The analysis was by spectrophotometer APLE (Japan) according to the manufacturer company of kits.

**Statistical analysis**

Data were analyzed by the ANOVA analysis, using the general linear model of the Statistically Analysis System. Significant treatment differences were evaluated using Duncan’s multiple range test. All statements of significance are based on the 0.05 level of probability.

**Results and Discussion**

The results in Table 1 showed there was a significant decrease (P<0.05) in the volunteer weight after fed of Arabian yogurt and white cheese in comparison with a control group. These results were an agreement with previous studies in this fields our result agreed with result they reported that body weight, body the mass index decreased significantly (P<0.05) following the two-week consumption of yogurt regardless of the condition also, there was agreed with the result, who found a decrease in weights of the group which intake dairy white cheese.

The results in our study disagree with, who showed that there was no significant difference in the Body mass index of the individuals. Also, these results disagree with, who reported a significant increase (P<0.05) in the bodyweight of experimental rats that fed on yogurt.

**Table (1): Effects of Arabian Yogurt and white cheese on bodyWeight of human.**
Table 2 showed there is no significant decrease in Hb, PCV and a significant increase in WBC, these results agreement with (18), who reported that no significant change in (complete blood count) except white blood cell count of our study that showed a significant increase (P<0.05) in numbers. Previous studies on birds which feeding on cheese whey exhibit no significant influence on packed cell volume (PCV), Hb but increase number of WBC and platelets, increase number of platelets is a healthy sign due to bioactive components of whey proteins (23).

Table (2): Effects of Arabian Yogurt and white cheese on Hb, PCV and W.B.C of human.

The results in table 3 showed that the volunteer groups, which administrated of Arabian yogurt and white cheese, respectively caused a significant decrease (P<0.05) in concentration of serum cholesterol, Triglyceride, LDL-C and VLDL-C, whereas observed significant increase (P<0.05) in HDL-C concentration in the two groups, which fed on Arabian yogurt and white cheese in comparison with normal control group.

Table (3): Effects of Arabian Yogurt and white cheese on lipid profile of human.

- The values represent mean±S.E.
- Different of letters vertically mean significant difference at the level of significance (P<0.05).

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These results of the lipids profile in the present study may due to the following causes; There isa suggestion that reduced the concentration of serum cholesterol, Triglyceride LDL-C, and VLDL-C maybe induced by probiotics that could be attributed to the fact that the deconjugation of bile acid by Lactobacillus spp. and the yeast increases a discharge of bile acids, which in turn increases the expenditure of cholesterol to produce bile acids, as well as precipitating cholesterol due to the low pH value of kefir which belongs to the probiotic group (8,24,25).

Moreover, fermentation of milk causing exist different vitamins, especially folic acid and B-complex, thereby these vitamins lead to an increase in the activity of metabolic processes of lipids in the liver (14, 26, 27). Subsequently increased the synthesis processes of HDL-C and metabolic destroy of other lipids such as LDL-C and Triglycerides. Previous studies have indicated that fermented milk products have been able to decrease total cholesterol (27, 28, 29, 30). Table (4) indicated that there was a significant decrease (P<0.05) in glucose, uric acid, while no significant variations in the urea of volunteers’ groups which administrated Arabian yogurt and white cheese in comparison with the control group. Previous prospective studies reported that higher dairy product intake of (cheese, yogurt and thick fermented milk) is associated with decrease diabetes risk (31, 32, 33, 34).

Table (4): Effects of Arabian Yogurt and white cheese on Glucose, Uric acid, and Urea of humans.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Groups</th>
<th>Glucose (mg/dl)</th>
<th>Uric acid (mg/dl)</th>
<th>Urea (mg/dl)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control</td>
<td>99.06±1.25  a</td>
<td>5.70± 1.52  a</td>
<td>21.00±2.30  a</td>
</tr>
<tr>
<td></td>
<td>Arabian Yogurt</td>
<td>75.50± 2.21 c</td>
<td>4.45± 1.24 b</td>
<td>19.90± 2.12 a</td>
</tr>
<tr>
<td></td>
<td>White cheese</td>
<td>87.9± 2.00 b</td>
<td>5.00± 1.00  a</td>
<td>20.70± 2.10 a</td>
</tr>
</tbody>
</table>

- The values represent mean±S.E.
- Different of letters vertically mean significant difference at the level of significance (P<0.05).

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References


