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Assessment of knowledge, perception, and use of dietary supplements in gym-goers

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Abstract

This research work was planned with objectives to assess the nutritional status of Gym-Goers, knowledge and use of dietary supplements among Gym-Goers and development of informative booklet on dietary supplements. The study delimited to the peoples of 2 age groups (20-30 and 30-40 years) who are engaged in gym activities from past three months and should be disease free. A sample size of 120 respondents 60 males and 60 females were selected from 7 gyms. A well- structured Questionnaire is prepared to check the knowledge of respondents about dietary supplements and their 24- hour dietary recall. Results of this study discloses that respondents in 20-30 years age group 46.66% (28) and 70% (42) in 30- 40 years of age group were going to gym for weight loss, 23.33% (14) in 20–30-year respondents were there for professional career and 30-40 years no one is interested in professional career. 76.66% (46) and 43.33% (26) respondents were taking dietary supplements in 20-30 and 30-40 years of age group respectively. In 20-30 years 63.33% (38) people were taking protein supplements and in 30-40 years 23.33% (14) were using protein supplements, 10% (6) and 20% (12) were taking multivitamins in 20-30 and 30-40 years of age group respectively no one is taking energy drink and 3.33% (2) people in 20-30 year were taking other health supplements like multimineral and hormone activator. As per knowledge of respondents 56.66% (34) and 35% (21) respondents says that supplement are effective to use in 20-30 and 30-40 years respectively. As per findings 50% (30) and 28.33% (17) were feel that supplements have some sort of side effects in 20-30 and 30-40 years respectively like 36.66% (22) and 23.33% (14) were come across constipation, 3.33% (2) and 3.33% (2) were having headache and hair loss in 20- 30 and 30-40 years respectively. According to results 70% (42) and 25% (15) were taking dietary supplements with the guidance of gym trainer in 20-30 and 30-40 years respectively and other 3.33% (2) and 8.33% (5) or 3.33% (2) and 10% (6) were taking supplements with guidance of nutritionist and social media respectively in 20-30 and 30-40 years of age group. According to the results of 24-hour dietary recall. Women in 20-30 years of age group were consuming more protein than required which is 125.12% of RDA and 81.24%, 89.48%, 77.93% of fat, energy and iron respectively which is less than RDA and 66.85% of calcium which is less than RDA. Men of 20-30 year of age group were consuming 140.14% of RDA which is more than RDA and 139.53%, 121.26%, 126.89% of fat, energy, iron respectively which is more than RDA and 71.61% of calcium which is less than RDA. Women of 30-40 year were consuming 83.39%, 71.72% of protein, energy, iron respectively which is less than RDA and 103.32% which is more than RDA and 48.36% which is less than RDA of fat and calcium respectively. Men of 30-40 year were taking 126.25%, 122.53%, 120.05% of protein, fat, iron respectively which is more than RDA or 81.26% of calcium which is less than RDA with and 107.67% of energy which is more than RDA.

Keywords: Perception, dietary supplements, gym-goers

Introduction

Dietary supplements are produced goods that can be taken as a pill, tablet, capsule, powder or liquid to assist supplement one's diet. Supplements can offer nutrients by extracting them from food sources or synthesising them to improve the quality of dietary supplements.

Dietary supplements can only supplement one's diet, they are not replacement of food. They are not drugs nor food.

Today's dietary trends goes with these dietary supplements. As fast going lifestyle won't fulfil dietary needs of individuals so to compensate diet one should use dietary supplements. As per global market survey dietary supplement market is going to take a boom in few years from now the estimated growth in CAGR is 6.85% over period 2020-2026 (according to markets and markets report).

India is on the apex of physical fitness revolution everyone is opting healthier options and incorporate them into their lifestyle. Some of them, mostly youngsters are more influenced through fitness industry. Due to more craze about fitness these days people start enrolling in

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gyms and fitness clubs and shifting their diet interests towards healthier options available in market.

Dietary supplements are very much included in diets of individuals due to corporate culture or fast moving lifestyle (where people are not willing to cook) as food won't fulfil one's dietary need. But there's a question mark on the effectiveness of these dietary supplements. Because dietary supplements are not regulated as drugs by the FDA, their manufacturers are not required to prove that supplements are safe and effective (although they must have a history of safety). Consequently, few supplements have been studied rigorously for safety and effectiveness. Due to its harmful effects label must state that the claims for the dietary supplement have not been evaluated by the US Food and Drug Administration (FDA). The label must also list each ingredient by name, quantity, and total weight and must identify the plant parts from which each ingredient is derived. Manufacturers are permitted to make claims about the product's structure and function (for example, good for urinary tract health), but they cannot make or imply claims for the product as a drug or therapy (for example, treats urinary tract infections). Expiration dates are often included on the standardized product labels.

Evidence about the safety and effectiveness of dietary supplements is increasing rapidly as more and more clinical studies are being done. Information about such studies is available from the National Institutes of Health's National Center for Complementary and Integrative Health (NCCIH).

Types of dietary supplements available in market

- **Protein supplements/Amino acid supplements:** High protein drink, pre-workout blends, BCAA, whey protein, HMB etc.
- **Vitamins and mineral supplements:** Vitamin- B complex, Multivitamins, Zinc and Iron supplement, Calcium tablets, etc.
- **Essential fatty acid supplements:** Omega 3 and 6 capsules.
- **Probiotic supplements:** Mono strain and multi strain probiotics.

Objectives

- To assess the nutritional status of gym- goers.
- Assess the knowledge and use of dietary supplements among gym- goers.

Methodology

The study was conducted in Udaipur city. Total 120 respondents in which 60 males and 60 females were selected by using purposive sampling of two different age groups (20-30 and 30-40 years). Total 7 gyms (Trans gym, Addiction gym and fitness centre, fitness club, 4 sure fitness gym, Shape In fitness club, Iron fitness gym, and shree ji gym) were included in the study through convenience sampling. To fulfil two objectives questionnaire is prepared for data collection to check their knowledge about dietary supplements and their dietary pattern. Firstly, it contains general information like age, gender, educational qualification, food habits and also their anthropometric measurements like height, weight and B.M.I. were recorded.

Secondly, it contains questions to check knowledge and use of dietary supplements among Gym-Goers i.e., type of health supplements they are using, quantity of consumption, from

whose guidance they are taking dietary supplements, their purpose of taking dietary supplements, effects or side-effects of supplements and their 24-hour recall diet in which total intake of protein, fat, energy, calcium and iron of respondents were calculated of two different age groups and gender as well and compare them to conclude result. Also, statistical tools like mean, standard deviation, Z-test were used to make results more precise and relevant.

Result and Discussion

The data was collected and analysed to inspect detailed, complete and circumstantial information about all the respondents and make meaningful conclusions. Results of this research according to questionnaire filled by respondents reveals that the individuals in 20-30 years of age group 16.66% (10) were exercising from just six months, 46.66% (28) individuals were exercising from past 1 year, 10% (6) respondents were doing gym from past 2 years and 26.66% (16) respondents were going to gym from more than 2 years and in 30-40 year of age group 35% (21) of total respondents were exercising from past 6 months that is quite more than 20-30 year of age group, 30% (18) individuals were exercising from past 1 year, 23.33% (14) individuals were exercising from more than 2 years and 11.66% (7) respondents were exercising from more than 2 years and the purpose of going to gym are 46.66% (28) gymers were going for weight loss, 23.33% (14) were going to gym for professional career in gyming, 26.66% (16) individuals were going to gym just to feel good and look better, 3.33% (2) individual were doing gym for body building in 20-30 year age group. In 30-40 years of age group 70% (28) respondents were going to gym for their weight loss, 25% (15) were going just to feel good and look better and 5% (3) were doing body building.

As per other findings in 20-30 year of age group 76.66% (46) respondents were actively using dietary supplements and 23.33% (14) respondents were not taking any supplements or in 30-40 years of age group 43.33% (26) individuals are taking some sort of dietary supplements and 56.66% (34) respondents were not taking any supplements. As per results in 20-30 years of age group 63.33% (38) of individuals were taking protein supplements, 10% (6) individual were consuming multivitamins and 3.33% (2) individuals were using other than mentioned supplements like multimineral or hormone activators and in 30-40 years of age group 23.33% (14) of individual were taking protein supplement and 20% (12) respondents were using multivitamins.

Results of this study shows 16.66% (10) individual of 20-30 years of age group are using supplements for better performance, 10% (6) individuals were using dietary supplement to improve health, 33.33% (20) respondents were using supplements for muscle building and 16.66% (10) were taking supplements to enhance physical appearance. Comparatively in 30-40 years of age group 6.66% (4) individual were taking supplements for better performance, 13.33% (8) were taking supplements to improve health, 5% (3) individuals were taking supplements for muscle building and 18.33% (11) respondents were taking supplements to enhance physical appearance. 50% (30) individual of 20-30 years of age group come across some side effects and 26.66% (16) experience no side effects. In age group of 30-40 years 28.33% (17) respondents come across some side effects caused by dietary supplements and 15% (9) individuals are not having any side effects those who are

facing side effects come across with constipation(36.66% (22)), 3.33% (2) experienced headache and hair loss in initial days, 10% (6) respondents go through nausea and vomiting in 20-30 year of age group and in 30-40 years of age group 23.33% (14) of respondents go through constipation and 3.33% (2) individuals come across headache and hair loss.

As study reveals, 70% (42) individuals were taking supplements with the guidance of gym trainer in 20-30 years of age group, 3.33% (2) individuals were taking supplements with the guidance of nutritionist and 3.33% (2) individuals were taking supplements through social media influence. In 30-40 years of age group 25% (15) respondents were taking supplements with the guidance of gym trainer, 8.33% (5) individuals were taking supplements with the proper guidance of nutritionist and 10% (6) individuals were taking supplements in the influence of social media.

As per the findings women of 20-30 years having mean protein intake of 57.18 ± 8.12 (mean \pm SD) which is 125.12% of RDA. Difference between RDA and mean dietary intake is significant with ($p < 0.01$) and in women of 30-40 years of age group mean protein intake is 38.11 ± 6.33 which is 83.39% of RDA with ($p > 0.01$) significance and is less than that of required RDA. In men of 20-30 years of age group mean protein intake is 75.68 ± 15.68 which is 140.14% of required RDA as all the men were moderate worker there required protein level should be 54gms but they acquire more than required due to high protein diet prescribed to them by trainers and the value is non-significant up to ($p < 0.01$) level of significance and is more than required RDA and in men of 30-40 years of age group mean protein intake was 68.18 ± 11.88 which is 126.25% more than required RDA and is significant with ($p < 0.01$) level of significance which is more than required RDA. Women of 20-30 years consume 20.31 ± 9.22 (mean \pm SD) fat which is 81.24% of required RDA it is ($p < 0.01$) significant difference between RDA and mean dietary intake which is less than required. In 30-40 years of female mean fat intake is 25.83 ± 11.86 which is 103.32% of RDA. It is non-significant ($p < 0.01$) difference between RDA and mean dietary intake which is more than required. In males of 20-30 years of age group mean fat intake was 41.86 ± 6.58 which is 139.53% more than RDA and difference between RDA and mean dietary intake is significant to ($p < 0.01$) level of significance which is more than required. In men of 30-40 years of age group mean fat intake is 36.76 ± 4.41 which is 122.53% of RDA which is significant to ($p < 0.01$) level of significance which is more than required. According to the results females of 20-30 year having mean calcium intake 668.52 ± 123.6 which is 66.85% of RDA which is significant to ($p < 0.01$) level of significance which is less than required RDA. In 30-40 years of female mean calcium intake is 483.61 ± 118.14 which is 48.36% of RDA and is non-significant ($p < 0.01$) level of significance which is less than required RDA. In male of 20-30 years mean calcium intake is 716 ± 178.33 which is 71.61% of RDA and is significant with ($p < 0.01$) level of significance more than required an in 30-40 years of male mean calcium intake is 812.62 ± 102.29 which is 81.26% of RDA and difference between RDA and mean dietary intake is significant with ($p < 0.01$) level of significance which is more than required and In females of 20-30 years mean iron intake is 22.6 ± 3.86 which is 77.93% of RDA and difference between RDA and mean dietary intake is significant with significance level of ($p < 0.01$) less than that of required and in female of 30-40 years of age group mean iron intake is 20.80 ± 4.81 which is 71.72% of RDA and the

difference between RDA and mean dietary intake is significant ($p < 0.01$) level of significance less than required. In males of 20-30 years of age group mean iron intake is 24.11 ± 8.56 which is 126.89% of required RDA and difference between RDA and mean dietary intake is significant ($p < 0.01$) level of significance more than required and in males of 30-40 years of age group mean iron intake is 22.81 ± 5.53 which is 120.05% of required RDA and difference between RDA and mean dietary intake is significant ($p < 0.01$) level of significance more than required.

Demographic representation of data

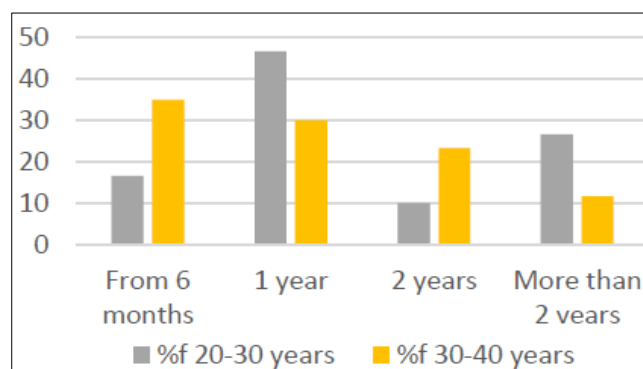


Fig 1: Distribution of individual on the basis of their exercising time span in gym

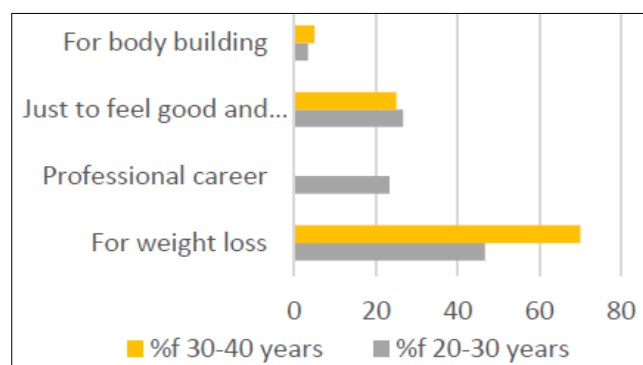


Fig 2: Distribution of respondents on the basis of purpose for going to gym.

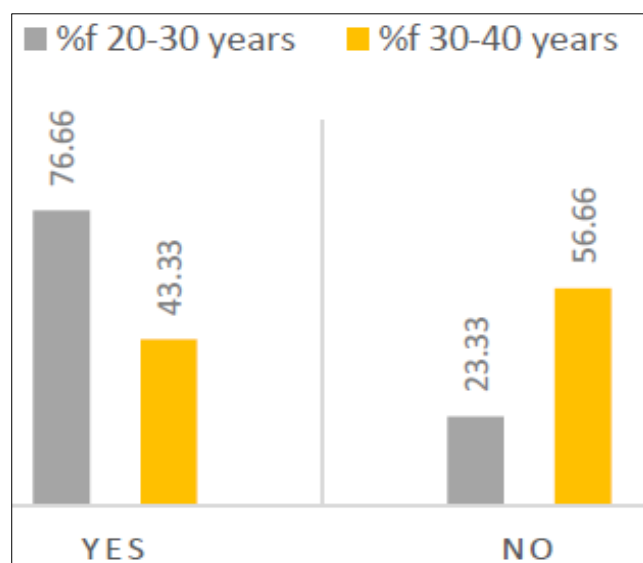


Fig 3: Distribution of Respondents on the Basis of use of Dietary supplements.

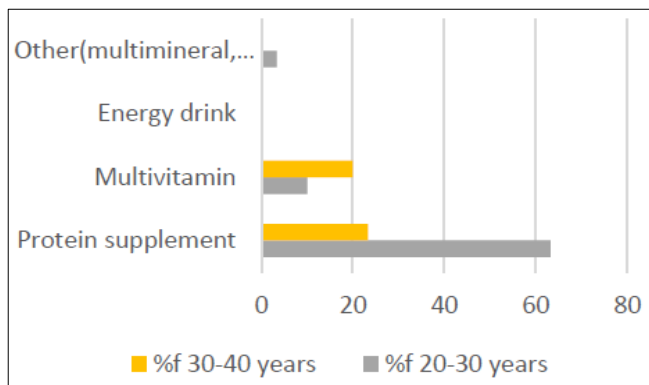


Fig 4: Distribution of respondents on the basis of type of supplement used.

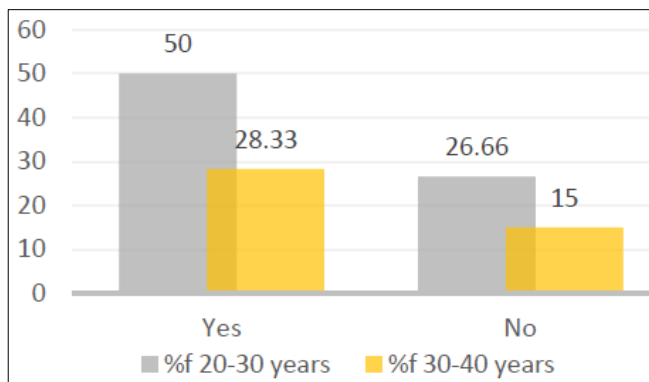


Fig 5: Distribution of respondents on the basis of side effects caused by supplements

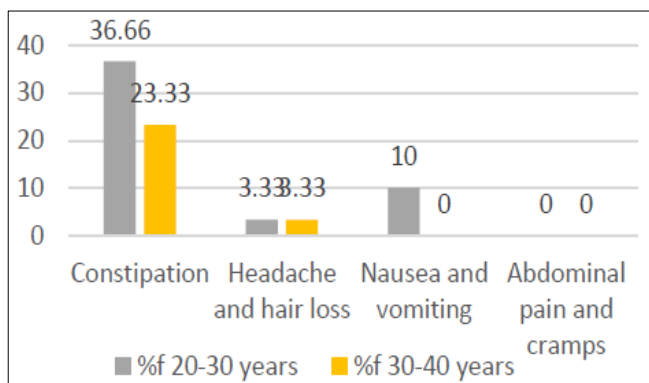


Fig 6: Distribution of respondents on the basis of type of side effects observed

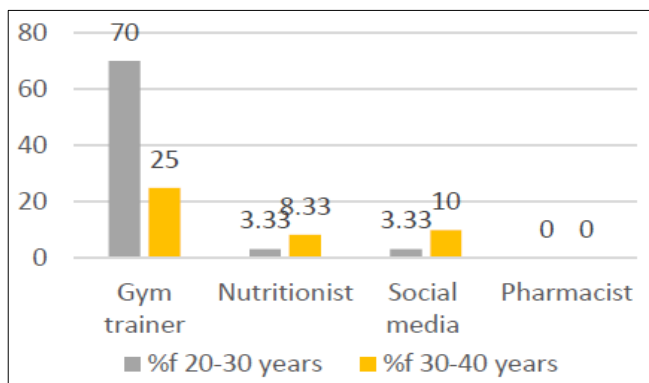


Fig 7: Distribution of respondents on the basis of guidance for taking supplements

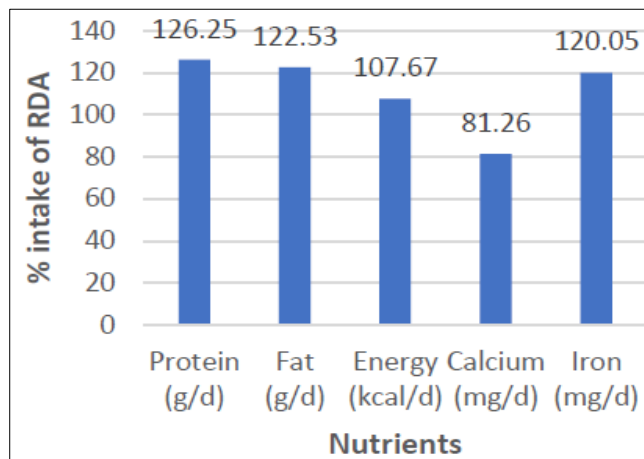


Fig 8: Percent adequacy of nutrient intake by gym-going women of 20-30 years of age group.

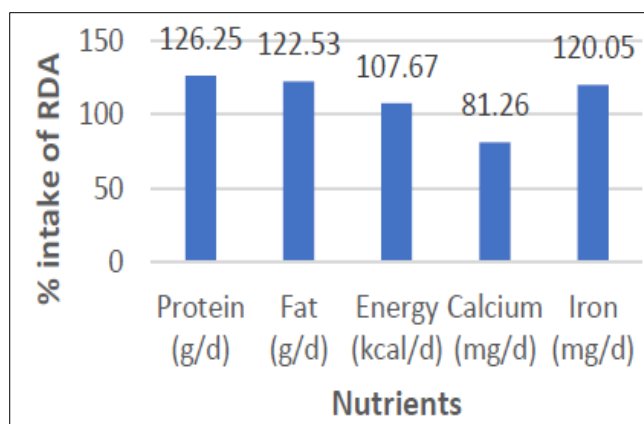


Fig 9: Percent adequacy of nutrient intake by gym-going men of 20-30 years of age group.

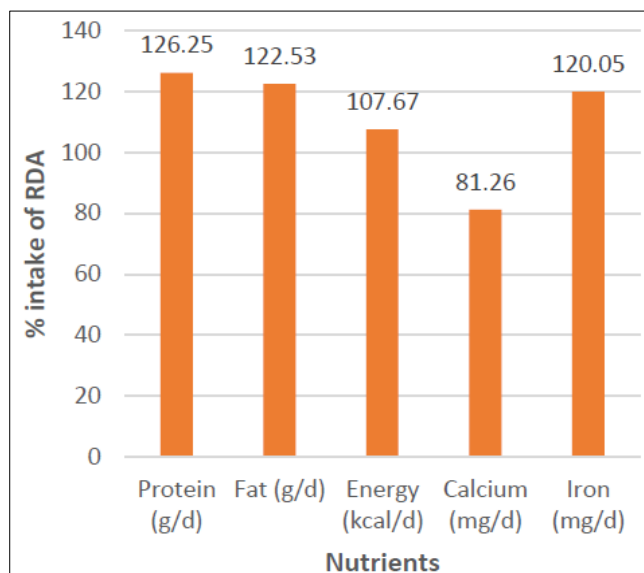


Fig 10: Percent adequacy of nutrient intake by gym-going women of 30-40 years of age group

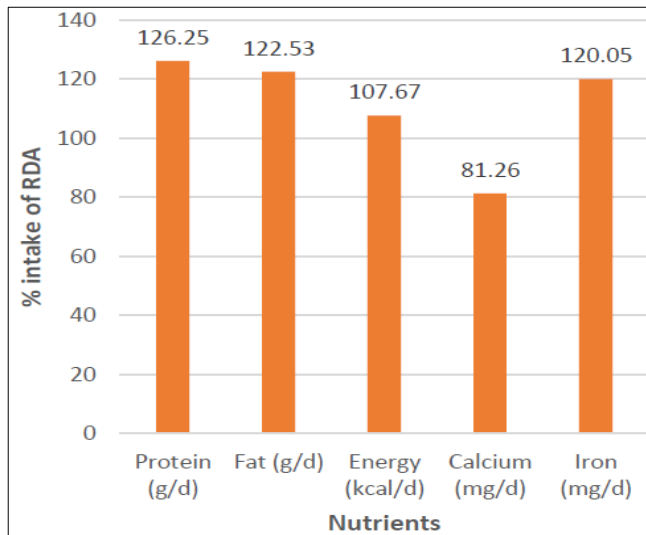


Fig 11: Percent adequacy of nutrient intake by of gym going men of 30-40 years of age group

Summary and Conclusion

According to the results this study concluded that respondents of 30-40 years were more highly educated than age group of 20-30 years. Majority of peoples were non vegetarian in 20-30 year of age group as compare to 30-40 year. More than 50% of peoples in 20-30-year age group were going to gym for more than 1 year but 30-40-year respondents have less than 50% who were going to gym more than 1 year. Majority of respondents in 30-40 year of age group were going to gym for weight loss as due to increased age physical activity decreases and no one is going to gym for professional career as in 20-30 year many people choose to go to gym for professional career or body building. In 20-30-year, age group more than 75% people were using dietary supplements and in 30-40 year this percentage is less than 45%. In 20-30-year, age group more than 60% individual were taking protein supplement but in 30-40-year people were almost equally opting protein supplement and multivitamin. In 20-30 year more than 50% were taking supplements daily but in 30-40 year approximately 30% were taking supplements daily otherwise they take supplements on workout days only. More than 50% individual in 20-30 year of age group believe that dietary supplements were effective to use and on other hand in 30-40 year only 35% were thought that supplements were effective. In 20-30 year of age group 50% of respondents said that dietary supplements have side effects and in 30-40-year age group 28% approximately were believed that dietary supplements have side effects. After using supplements majority of people come across constipation in initial days in both age group. Due to influence of gym trainer majority (approximately 70%) people in 20-30-year age group were taking supplements without proper knowledge and only few were taking supplements with the guidance of nutritionist in both age group. In both age group average height of individual is almost equals to the standard height and average weight is more than that of standard weight that's why many individuals were lies in category of pre- obesity, obesity class-I, and obesity class-

II. According to daily nutrient intake women's were taking less nutrients than men's of both age group and men's were taking nutrients more than standard RDA value. Lack of knowledge regarding diet and dietary supplements this nutrient fluctuation is seen in both genders of different age group.

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