Use of Dietary Supplements in Patients Seeking Treatment at a Periodontal Clinic

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Background

- Dietary supplement use may modify the risk for the development and progression of periodontal disease.
- Antioxidant activity of vitamins and anti-inflammatory activity of polyunsaturated fatty acids may attenuate the development of periodontal disease.
- Vitamin D sufficiency (serum 25(OH)D>50 nmol/L) before open flap debridement surgery resulted in greater clinical attachment levels and reductions in probing depths post-surgery.
- Other nutrients may also assist with wound healing.
- Before conducting RCTs to determine if dietary supplements enhance outcomes after periodontal procedures, we need to understand the pattern of dietary supplement intakes to design such studies.

Objective

To characterize the use of dietary supplements by patients who seek periodontal treatment for one of three reasons: comprehensive general examination, implant consultation, or other surgical consultation.

Study Design

- 376 surveys were collected from a periodontal clinic in Southern Ontario, Canada.
- The 'reason for visit' categories were: Comprehensive General Examination (n = 90), Implant Consultation (n = 126), and Other Surgical Consultation (n = 160, crown lengthening, flap surgery, grafting).
- A supplement was considered used if the patient indicated any use of the supplement, irrespective of brand, dose, frequency, or duration.
- The frequency of supplement use among groups was assessed using a Chi-square test, $p \leq 0.05$.
- This study was approved by the Human Ethics Board at Brock University, St. Catharines, Ontario.

Results

Table 1. Characteristics of Study Population

Characteristic		Male n = 152 n (%)	Female n = 224 n (%)	Total n =376 n (%)
Age				
	31–50 years	45 (29.6)	70 (31.2)	115 (30.6)
	51–70 years	85 (55.9)	131 (58.5)	216 (57.5)
	≥70 years	22 (14.5)	23 (10.3)	45 (12.0)
Smoking Status				
	Ever Smoker	28 (18.4)	32 (14.3)	60 (16.0)
	Never Smoker	124 (81.6)	192 (85.7)	316 (84.0)
Reason for Visit				
	Comprehensive General Examination	37 (24.3)	53 (23.7)	90 (23.9)
	Implant Consultation	56 (36.8)	70 (31.2)	126 (33.5)
	Other Surgical Consultation	59 (38.8)	101 (45.1)	160 (42.6)

Results

Table 2: Total Supplements Used By Sex, Age and Smoking Status.

Total Supplements	Male n = 152 n (%)	Female n = 224 n (%)	31-50 years n = 115 n (%)	51-70 years n = 216 n (%)	≥ 70 years n = 45 n (%)	Current Smoker n = 60 n (%)	Non-Smoker n = 316 n (%)
0	70 (46.1) [a]	65 (29.0) [b]	55 (47.8) [a]	73 (33.8) [b]	7 (15.6) [c]	35 (58.3) [a]	100 (31.6) [b]
1	28 (18.4)	36 (16.1)	26 (22.6) [a]	29 (13.4) [b]	9 (20.0) [a,b]	6 (10.0)	58 (18.4)
2	14 (9.2)	30 (13.4)	11 (9.6)	26 (12.0)	7 (15.6)	5 (8.3)	39 (12.3)
3	14 (9.2)	29 (12.9)	11 (9.6)	27 (12.5)	5 (11.1)	5 (8.3)	38 (12.0)
≥4	26 (17.1) [b]	64 (28.6) [a]	12 (10.4) [b]	61 (28.2) [a]	17 (37.8) [a]	9 (15.0)	81 (25.6)

Within sex, age, and smoking status, different superscripts in a row denote significant differences among groups ($p \leq 0.05$)

Table 3. Sex Differences in Supplements Used.

Supplement Name	Male n = 152 n (%)	Female n = 224 n (%)	p value
B Vitamin Complex	10 (6.6) [b]	32 (14.3) [a]	0.020
Calcium	14 (9.2) [b]	83 (37.1) [a]	<0.001
Fish Oil	10 (6.6) [b]	30 (13.4) [a]	0.041
Green Tea	6 (3.9) [b]	29 (12.9) [a]	0.003
Magnesium	6 (3.9) [b]	31 (13.8) [a]	0.001
Omega 3,6,9	13 (8.6) [b]	36 (16.1) [a]	0.042
Vitamin D	33 (21.7) [b]	84 (37.5) [a]	0.001

Different superscripts in a row denote significant differences among groups ($p \leq 0.05$)
Use of other supplements did not significantly differ by sex.

Table 4. 10 Most Frequently Used Supplements by Age.

31–50 years n = 115		51–70 years n = 216		≥70 years n = 45	
Supplement Name	n (%)	Supplement Name	n (%)	Supplement Name	n (%)
Multivitamin	32 (27.8)	Vitamin D	77 (35.6)	Vitamin D	20 (44.4)
Vitamin D	20 (17.4)	Multivitamin	73 (33.8)	Calcium	18 (40.0)
Calcium	16 (13.9)	Calcium	63 (29.2)	Multivitamin	12 (26.7)
Vitamin C	15 (13.0)	Vitamin C	35 (16.2)	Vitamin C	11 (24.4)
B Vitamin Complex	10 (8.7)	Omega 3,6,9	30 (13.9)	Magnesium	9 (20.0)
Fish Oil	10 (8.7)	Vitamin B12	30 (13.9)	Omega 3,6,9	9 (20.0)
Omega 3,6,9	10 (8.7)	B Vitamin Complex	28 (13.0)	Fish Oil	7 (15.6)
Green Tea	8 (7.0)	Magnesium	24 (11.1)	Vitamin B12	7 (15.6)
Vitamin B12	8 (7.0)	Fish Oil	23 (10.6)	Glucosamine	6 (13.3)
Flaxseed Ground	5 (4.3)	Green Tea	23 (10.6)	B Vitamin Complex *	4 (8.9)
				Flaxseed Ground *	4 (8.9)
				Green Tea *	4 (8.9)

* Supplements with same frequency of use in 10th position.

Summary

- Study population was mostly female (60%) and 51-70 years of age (57%).
- Older, non-smoking females most likely to use supplements.
- Females used more B Vitamin Complex, Calcium, Fish Oil, Green Tea, Magnesium, Omega 3,6,9, and Vitamin D than males.
- Calcium and Vitamin D use increased with patient age.
- Smokers used less Calcium, Fish Oil, Green Tea, and Vitamin D than non-smokers.

Conclusion & Next Steps

Supplement usage was similar to the general Canadian population, independent of reason for visiting the periodontist. Future dietary intervention studies to optimize periodontal health can focus on supplements with known biological activities that may enhance would healing after periodontal procedures. Dietary supplements such as those with known anti-inflammatory, antioxidant or osteogenic activity are of interest.

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2. Lau, B.Y.; Johnston, B.D.; Fritz, P.C.; Ward, W.E. Dietary strategies to optimize wound healing after periodontal and dental implant surgery: An evidence-based review. *Open Dent. J.* **2013**, In press.