

# Nutrition, Gender, and Oral Health: *Something to Chew On*

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## Abstract

While oral health's relationship to nutrition has long been established, the area of nutrition, gender, and oral health has not been well researched. Diseases affecting or stemming from the oral cavity all have nutritional aspects in their development, progress, and/or prognosis. Where these diseases are gender specific, dental hygiene practitioners need to consider how to integrate nutritional information into education designed to meet the needs of the client in their care.

The diseases focused on in this article—oral cancer, diabetes mellitus, and osteoporosis—are all discussed in the context of their implication for oral health or their manifestation within the oral cavity. Nutritional perceptions and how they differ in relation to gender are presented. These perceptions may affect the amount or type of information required by the client. The gender-specific nature of oral cancer, diabetes mellitus, and osteoporosis is also discussed and nutritional recommendations for these various diseases are put forth.

Nutritional requirements and perceptions have been integrated with current literature on oral health needs related to the various diseases presented.

## Introduction

The old adage says that “we are what we eat” but when it comes to gender, there is a very definite difference in the way food affects us and our overall health. Men and women have a different genetic makeup and respond differently to oral and systemic disease. A number of diseases have different patterns of occurrence and development

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dependent on gender: osteoporosis, osteoarthritis, responses to radiation and chemotherapy, chronic facial pain, chronic fatigue syndrome, and fibromyalgia all exhibit gender differences.<sup>1</sup> The difference in gender continues on in lifestyle choices and nutritional intake.<sup>2</sup> Knowing this, what are the implications—based on nutritional choices and gender-specific diseases—for oral health?

This article examines the information available on the topic of the gender relationship to the dual concepts of nutrition and oral health. The literature review involved in writing this article covered basic nutrition and oral health and moved on to specific gender needs in nutrition and oral health. It soon became apparent that the research on gender-specific nutritional needs and oral health is rare. What is not rare, however, is the amount of information on gender-specific diseases and nutritional concerns related to those diseases. A number of gender-dominated illnesses have distinct oral health and nutritional needs for the client. Dental hygiene practitioners should be aware of these gender-based disease/health issues in order to provide optimum information for their clients. Therefore, it is important to study, through the lens of gender specificity, those diseases that have specific nutritional requirements and affect oral health. Understanding the nutritional needs of patients with these illnesses enables practitioners to provide information to clients to assist them in improving oral health and overall wellness.

While many illnesses show distinct epidemiological patterns related to gender,<sup>1</sup> this article focuses on diabetes mellitus, osteoporosis, and oral cancer. These three diseases show strong gender patterns in terms of probability and development and while each has a focused nutritional need, the manifestation of these diseases also has specific oral health concerns.

## Gender perceptions of nutrition

Nutrition is a popular topic and is often concerned with weight loss and obesity. It has become a fad to count calories or discuss the latest anti-aging nutrient miracle. But does the average person realize the extent to which nutrition affects



day-to-day health and the components of total health, including oral health?

According to the Department of Family and Consumer Sciences, University of Wyoming, women are more “nutrition wise” than men. Women report higher intakes of fruits, vegetables, and high fibre cereals, and lower intakes of milk and sweetened beverages. Women are also less likely to order super-sized portions at fast food franchises. The conclusion drawn from this is that women have a greater awareness of high fat diets and the need to avoid fat intake. Overall, this study indicates that except for calcium, female diets are more nutrient dense than are male diets.<sup>3</sup>

In Canada, the National Institute of Nutrition reports that 59% of women and 47% of men identify nutrition as extremely important to their overall health.<sup>2</sup> The vast majority of Canadians—93%—believe that foods have health benefits beyond basic nutrition, and most recognize that foods enhance health and prevent disease. Canadians in the 2002 Health Canada study, *Tracking Nutrition Trends*,<sup>2</sup> were able to cite many health promoting foods such as broccoli, milk, fresh fruit, leafy green vegetables, and fibre. According to this study, the main concern of Canadians when reviewing their own diets was the intake of fat, including saturated fats. These data, broken down by gender, show men were less concerned with fat intake. Men were also unconcerned about their intake of iron and calcium while women were very concerned. In addition to being more concerned about their overall fat intake, women were more concerned about the types of fat absorbed, for example, saturated fats, omega-3 fats, and trans-fatty acids.

With this apparent tendency for nutritional perceptions and concerns to break down along gender lines, it is important to look further at the issues of gender-specific diseases and the nutritional/oral health components affecting dental hygiene practitioners' clients.

### Gender specificity and diseases affecting oral health

**Diabetes mellitus** affects millions of Canadians, approximately 4% of the total population.<sup>4</sup> The incidence of diabetes mellitus tends to increase with age, throughout the five-year periods outlined in Statistics Canada data. In every age category, more males than females have been diagnosed with the disease. This trend has been apparent in statistical data since 1994–95. The trend also shows an increasing number of diabetics diagnosed annually in both male and female category. In 1994–95, 6.9% of males between the ages of 55 and 64 were diagnosed with diabetes, compared with only 6% of females. However, by the year 2001, the number of males diagnosed increased to 10% while the percentage of females had increased to 7.3%. The gender difference in incidence appears to be increasing, particularly in the over-55 age range. Diabetes mellitus is the cause of death for 20.6% of men and 14.8% of women when compared with all causes of death in the Canadian population.<sup>5</sup>

**Oral cancer** can be viewed as a lifestyle disease, being more prevalent in smokers or tobacco chewers.<sup>6</sup> This disease has a higher incidence among males than females.<sup>7</sup> While

Statistics Canada does not provide data on the number of oral cancer cases per year, it does provide data on the lifetime probability of developing and dying from oral cancer. For males aged 60, this probability is 0.5; for females in the same age group, it is only 0.2 for females, less than half. The ratio at age 70 shows males at 0.6 while females remain at 0.2. Thus males are increasingly more likely to develop oral cancer. By age 80, the probability of males developing oral cancer drops to 0.4 and the probability for females remains the same, 0.2.<sup>7</sup> For women, oral cancer is the least probable cancer for development and death. However, for men, the Statistics Canada table shows the probability of developing or dying of oral cancer is ahead of stomach and pancreatic cancers, leukemia, and melanoma. In the United States, the oral cancer survival rate has remained relatively the same for the past 30 years.<sup>6</sup> Oral cancer, normally considered a disease of the older adult, has begun to show an increase in incidence in the young adult population with the incidence still higher for males than for females.<sup>6</sup>

**Osteoporosis** is considered a predominantly female disease. As a part of women's health issues around aging, osteoporosis is related to postmenopausal conditions.<sup>8</sup> The National Institute of Osteoporosis in the United States reports that, of the 10,000,000 people suffering from this disease, 80% are female. In Canada, the prevalence of osteoporosis among women over age 50 is estimated at 15.8%.<sup>9</sup> Due to the debilitating nature of the disease, the cost to the health care system in Canada is over \$1 billion per year. Subsequent related bone fractures in senior years can lead to death due to incapacitation. While genetics is an important pre-determinant of osteoporosis,<sup>9</sup> nutrition and physical activity play a major role in contributing to optimum bone density.<sup>10</sup>

### Implications for oral health

**Diabetes mellitus** produces many changes in the body's immune system and its ability to fight disease. In diabetes mellitus, insufficient amounts of glucose enter the cell, resulting in higher glucose levels in the bloodstream. As a result, the body tends to metabolize fat stores rather than glucose for energy. The chronic elevated glucose levels can lead to complex reactions within the cells. These complex reactions create cross bonding and affect the body's ability to respond to disease and trauma. This leads to an increased susceptibility to infection and slower healing after trauma.<sup>11</sup> In terms of oral health, this translates into slow recovery at best or an inability to recover from periodontal disease. Chronic oral infection may itself lead to increased blood glucose levels, further complicating the diabetes mellitus. The oral cavity's ability to defend itself from the onset of periodontal disease depends to a large degree on the integrity of the structure and function at the gingival sulcus.<sup>12</sup> When an acute infection in the oral cavity presents itself, the treatment requires aggressive management.<sup>13</sup> One of the compounding variables of diabetes mellitus is the higher risk for alveolar bone loss in poorly controlled diabetics.<sup>14</sup> This further aggravates the oral cavity's ability to defend itself against the onset of periodontal disease. Unfortunately, the dental practitioner may not have participated on the diabetes mellitus management team and thus the oral complications of the disease may not have been part of the diabetes mellitus

education plan for the patient. Once compromised through diabetes mellitus, the immune system and the body's defences are severely impaired with little ability to rebuild and offset the disease process.

**Oral cancer** most frequently presents itself as squamous cell carcinoma. Pre-malignant lesions of leukoplakia and erythroplakia are present prior to the diagnosis of oral cancer.<sup>15</sup> Treatment for oral cancer is aggressive and debilitating, often involving the removal of supporting mucosal tissue and possibly the jaw structure or segments of alveolar bone.<sup>16</sup> The long-term effects of radiation or chemotherapy may result in partial to complete xerostomia.<sup>17</sup> The accompanying increase in periodontal disease and caries becomes a challenging treatment problem for the dental hygiene practitioner.

**Osteoporosis** is generally associated with postmenopausal women. Oral health strategies for postmenopausal women are similar to all women with the exception of the concerns related to the disease of osteoporosis. While periodontal disease is insidious at any age, for women with osteoporosis, the disease is further complicated by the reduced density of the alveolar bone.<sup>18</sup> Although there has been an increase in the number of adults retaining their teeth into their senior years, the relationship between osteoporosis and tooth loss is still in question. Bone density of the alveolar bone correlates to overall bone mineral density (BMD). When bone density is reduced, the progress of periodontal disease speeds up and the intensity of the disease increases. The interaction of periodontal disease with bone structure compromised by osteoporosis can contribute to premature tooth loss.<sup>19</sup>

With bone fragility accounting for fractures in the majority of postmenopausal women,<sup>19</sup> the fragile nature of the jaw bone itself further complicates treatment of the client with osteoporosis. With bone fragility in the jaw structure, particularly the mandible, and the loss of supporting alveolar bone from periodontal involvement, the jaw structure becomes further limited in its ability to withstand stress. The pressure from scaling as part of routine periodontal therapy may result in a fracture of the mandible unless extreme care is taken, both in positioning the instruments and in using a fulcrum to stabilize the instrumentation.<sup>19</sup>

### Nutritional management of these diseases

The background and education of the dental hygiene profession has included nutrition counselling as a part of overall dental hygiene care. Learning to integrate new and challenging problems with clients' dental hygiene treatment plans offers an opportunity for dental hygienists to incorporate more of the nutritional expertise that is already part of the dental hygiene practitioner's armamentarium. It would serve to enhance the overall education and health promotion concepts that have become synonymous with a dental hygiene treatment plans.

**Diabetes mellitus** requires nutritional management through a registered dietitian. In general, the diet requirements are for a healthy, low-fat diet. A correlation must exist between calories ingested, particularly carbohydrates, and the activities of daily living using those calories. Increased physical

Gender	Diabetic management of diabetic clients	Practitioner concerns related to gender perceptions
Male	<ul style="list-style-type: none"> <li>• Follow the Health Canada food guide.</li> <li>• Eat small meals and snacks more frequently.</li> <li>• Monitor weight and maintain weight suitable for height [body mass index].</li> <li>• Maintain or increase physical activity as per physician's instructions.</li> <li>• Limit alcohol intake.</li> </ul>	<ul style="list-style-type: none"> <li>• Perceptions of and concerns about fat intake are usually lower than female.</li> <li>• Interest in consumption of high fibre food is generally less than females; more encouragement is therefore required.</li> <li>• Consultation with the diabetic management team is necessary.<sup>2,14,21</sup></li> </ul>
Female	<ul style="list-style-type: none"> <li>• Same as for males</li> </ul>	<ul style="list-style-type: none"> <li>• While females tend to be more conscious of diet control, a review of dietary intake is important.</li> <li>• With the tendency for females to make healthier choices in high fibre foods, fresh fruits and vegetables, these choices need to be reinforced.</li> <li>• Consultation with diabetic management team is necessary.<sup>2,14,21</sup></li> </ul>

**Table 1.** Diabetes mellitus and dietary management: concerns for the practitioner

activity is usually recommended. Meals should be carefully timed to ensure there are no low points in terms of glucose levels, as well as high points. Weight loss may be required to assure control of hyperglycemia.

For the dental hygiene practitioner, recognition of the dietary requirements of the clients who have diabetes mellitus is important. The American Dietetic Association has endorsed the need for oral health experts to provide additional baseline education in nutrition for diabetic clients. The links between oral and nutrition health requires practitioners in both fields to work together for optimum client care.<sup>20</sup> While clients diagnosed with diabetes mellitus are put through an extensive education program with their diabetic management team, male clients may actually require additional encouragement and support to control fat and carbohydrate intake based on the already identified gender perceptions of nutritional requirements. Women on the other hand may have to be encouraged not to cut out too many carbohydrates and in effect create low blood glucose levels.

Eating small amounts of food more frequently has been shown to control blood glucose levels most effectively.<sup>14</sup> However, the basic dietary requirements should be formulated by a registered dietitian. Support and encouragement for compliance is an appropriate role for the dental hygienist. Recognizing the perceptions of nutrition based on gender helps to direct the support for the practitioner. Table 1 summarizes nutritional principles for male and female diabetic clients.

**Oral cancer** has not had the benefit of as much research in terms of nutrition and oral health as diabetes mellitus. However, the research has shown that a protein found in soybeans (the Bowman-Birk inhibitor) may actually shrink abnormal growths such as leukoplakia, a precursor to can-



Categories of assessment	Diet summary for oral cancer client
Nutritional risk	1. Assess current nutritional status. 2. Identify nutrient needs by category. 3. Determine additional nutrient requirements.
Nutritional guidance	1. Identify nutritional needs in anticipation of treatment. 2. Identify nutritional needs in anticipation of loss of dental function.
Rehabilitation	1. For malnutrition resulting from cancer therapy. 2. For weight loss subsequent to cancer therapy.
Support	1. Identify network to assist in nutritional management; this network will vary based on the client's support needs.
Follow-up	1. Assess nutritional intake. 2. Adjust the nutritional plan to meet ongoing nutritional needs. 3. Identify problems occurring in nutrient consumption.

**Table 2.** Summary of nutritional assessment and requirements for the oral cancer client<sup>14,16,25,26</sup>

cer.<sup>22</sup> While the study reporting these findings was limited to a small number of patients, the results are encouraging. The Bowman-Birk protein needs to be used by a larger sampling of people with leukoplakia present.

Broader nutritional concepts have shown the need for antioxidants to influence the pathogenesis of oral cancer. Also, folate deficiency can lead to increased DNA damage, disruption of DNA, and diminished ability for DNA methylation.<sup>23</sup> Degradation of DNA supports and encourages cancerous growth. Although not a basic nutrient, increased alcohol consumption increases the odds ratio for oral cancer risk and reduces the ability to combat the disease once present.<sup>24</sup>

A nutritional plan for oral cancer patients should include thorough nutritional screening to identify lifestyle factors that may influence the progress and development of cancer and nutritional rehabilitation. Table 2 summarizes nutritional concerns related to oral cancer patients.

**Osteoporosis** is a disease related to calcium loss. As such, the calcium required to maintain the hydroxyapatite structure of bone is 800 mg/day for males age 19–49 years and 700 mgs/day for females of the same age.<sup>19</sup> However, for all adults over the age of 50, 800 mgs/day is the standard requirement. Within a client's health history, nutritional concerns such as lactose intolerance and food allergies may give some indication of whether this daily amount has been achieved.<sup>8,18,27</sup>

In addition to calcium, the osteoporotic client requires vitamin D to regulate the absorption and metabolism of calcium. Vitamin D is absorbed through the gastrointestinal tract and has been known to enhance bone mass levels in children. Whether or not it is effective in long-term tooth retention for the patient already dealing with osteoporosis is yet to be seen. However, without the vitamin D, additional calcium in the diet will not affect the calcium levels or the bone mineral density (BMD) of the client. Recommended vitamin D levels are 2.5 µg/day for all persons aged 19–49 and 5 µg/day for anyone over the age of 50. These recommendations follow the Canadian guidelines for dietary intake. Where lactose intolerance is a problem for the client,

calcium-fortified foods and calcium supplements are another option for adults, particularly older adults with osteoporosis. The role of the dental hygiene practitioner is to determine the level of calcium the osteoporotic client is obtaining daily and reinforce recommendations to attain the standards set by Canadian dietary guidelines.

## Summary

While the nutrition has always been a part of the course of study for dental hygienists, the increasingly complex delivery of service to clients and health care needs have increased the need to focus on nutritional requirements of the dental client. Gender perceptions of nutrition and nutritional requirements are diverse, with women more concerned than men about nutrition issues. Awareness that nutrition is related to oral health is only beginning in the general public. Many people still consider nutrition related only to total health. With increasing concern about specific diseases that affect oral health and the gender specificity of these diseases, it is important to share with clients current knowledge of nutrition as it relates to these diseases. The dental hygiene practitioner has the baseline knowledge related to nutrition and, with additional information, can continue to provide optimum health education to clients. The most current research findings indicate more complex nutritional needs when it comes to certain diseases and oral health. If we are what we eat, recognition of those special nutritional needs and the gender perceptions of nutrition offers the best possible care for the client.

## References

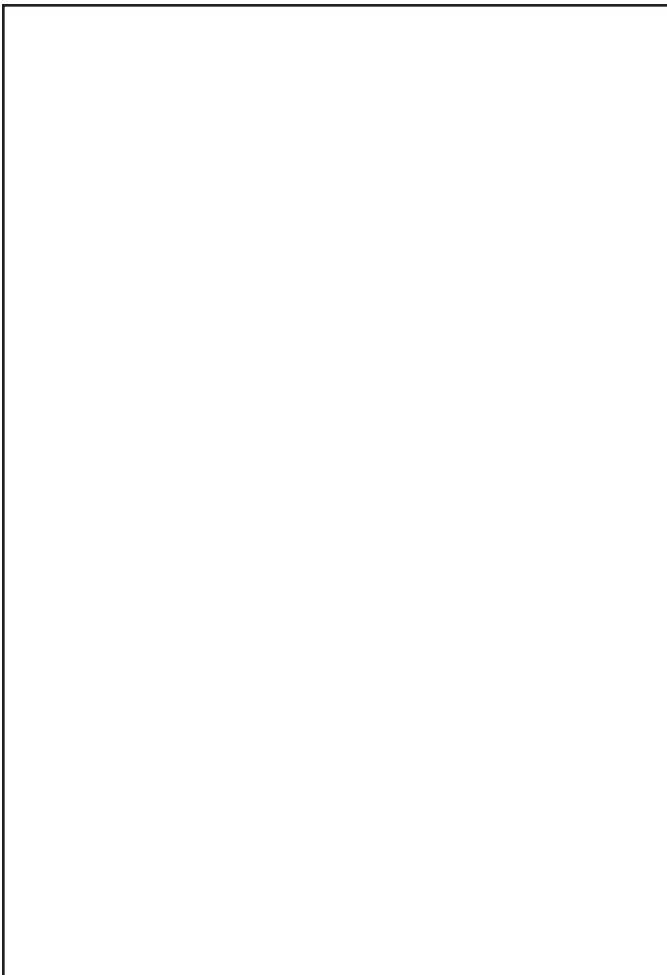
- Slavkin, H.: Distinguishing Mars from Venus: emergence of gender biology differences in oral health and systemic disease. *Compend Cont Educ Dent* 23(10 Suppl): pp. 29–31, 2002
- Health Canada: What do Canadians think about nutrition? Ottawa: Health Canada, p. 2, 2002
- Leibman, M.: Gender differences in selected dietary intakes and eating behaviours in rural communities in Wyoming, Montana, and Idaho. *Nutr Res* 23(8): pp. 991–1002, 2003
- Statistics Canada: Persons with diabetes by age and sex [on-line]. Ottawa: Statistics Canada, 2002. (Cited October 30, 2003.) <[www.statcan.ca/english/Pgdb/health53a.htm](http://www.statcan.ca/english/Pgdb/health53a.htm)>
- Statistics Canada: Selected leading causes of death by sex [on-line]. Ottawa: Statistics Canada, 1997. (Cited October 30, 2003.) <[www.statcan.ca/english/Pgdb/health36.htm](http://www.statcan.ca/english/Pgdb/health36.htm)>
- American Cancer Society: Oral cancer survival rate remains unchanged over the last thirty years [on-line]. American Cancer Society, 2002. (Cited October 28, 2003.) <[www.cancer.org/docroot/MED/content/MED\\_2\\_1x\\_Oral\\_Cancer\\_Survival\\_Rate\\_Remains\\_Unchanged\\_Over\\_the\\_Last\\_Thirty\\_Years.asp](http://www.cancer.org/docroot/MED/content/MED_2_1x_Oral_Cancer_Survival_Rate_Remains_Unchanged_Over_the_Last_Thirty_Years.asp)>
- Statistics Canada: Lifetime probability of developing and dying from cancer [on-line]. Ottawa: Statistics Canada, 2001. (Cited October 30, 2003.) <[www.statcan.ca/english/Pgdb/health25a.htm](http://www.statcan.ca/english/Pgdb/health25a.htm)>
- National Institutes of Health, Osteoporosis and Related Bone Diseases—National Resource Center: Osteoporosis overview [on-line]. Washington, D.C.: NIH ORBD–NRC, 2000. (Cited October 28, 2003.) <[www.osteoporosis.org/osteoporosis.html](http://www.osteoporosis.org/osteoporosis.html)>
- Atkinson, S., Ward, W.: Clinical nutrition: 2. The role of nutrition in the prevention and treatment of adult osteoporosis. *CMAJ* 165(11): pp. 1511–1514, 2001
- Finn, S.: Nutrition – the best opportunity for improving the health of women. *J Womens Health Gend Based Med* 8(5): pp. 597–600, 1999

11. Spence, A.: *Biology of Human Aging*. 2nd ed. Upper Saddle River, NJ: Prentice Hall, 1995
12. Harris, N., García-Godoy, Feds.: *Primary preventive dentistry*. 6th ed. Upper Saddle River, NJ: Pearson Prentice Hall, 2004
13. Bell, G., Large, D., Barclay, S.: Oral health care in diabetes mellitus. *SADJ* 55(3): pp. 158–165, 2000
14. Palmer, C.: *Diet and nutrition in oral health*. Upper Saddle River, NJ: Pearson Education, 2003
15. Casiglia, J., Woo, S.: A comprehensive review of oral cancer. *Gen Dent* 49(1): pp. 72–82, 2001
16. Rugg-Gunn, A.: Nutrition, diet and oral health. *J R Coll Surg Edinb* 46(6): pp. 320–328, 2001
17. Gift, H.: Issues of aging and oral health promotion. *Gerodontics* 4(5): pp. 194–206, 1988
18. McCann, A., Bonci, L.: Maintaining women's oral health. *Dent Clin North Am* 45(3): pp. 571–601, 2001
19. Krail, E.: The oral effects of osteoporosis. *Nutr Clin Care* 4(1): pp. 22–27, 2001
20. Touger-Decker, R., Mobley, C., American Dietetic Association: Position of the American Dietetic Association: Oral health and nutrition. *J Am Dietetic Assoc* 103(5): pp. 615–625, 2003
21. Calvert, S.: Nutrition and healthy aging. *J Womens Health Gen Based Med* 9(7): pp. 711–716, 2000
22. American Cancer Society: Chemical found in soybeans may help prevent oral cancer. News brief, 2000. (Cited October 28, 2003.) <[www.cancer.org/docroot/NWS/content/NWS\\_1\\_1x\\_Chemical\\_Found\\_in\\_Soybeans\\_May\\_Help\\_Prevent\\_Oral\\_Cancer.asp](http://www.cancer.org/docroot/NWS/content/NWS_1_1x_Chemical_Found_in_Soybeans_May_Help_Prevent_Oral_Cancer.asp)>
23. Enwonwu, C., Sanders, C.: Nutrition: impact on oral and systemic health. *Compend Cont Educ Dent* 22(3 Spec No): pp. 12–18, 2001
24. Muscat, J., Richie, J., Thompson, S., Wynder, E.: Gender differences in smoking and risk for oral cancer. *Cancer Res* 56(22): pp. 5192–5197, 1996
25. Saith, R.: The gender sensitivity of well-being indicators. *Development & Change* 30(3): pp. 465–498, 1999
26. Steinberg, B.: Women's oral health issues. *J Calif Dent Assoc* 28(9): pp. 663–667, 2000
27. McBean, L., Groziak, S., Miller, G., Jarvis, J.: Healthy eating in later years: nutrition in the life cycle. *Nutrition Today* 36(4): 192–201, 2001

**"WHAT'S IN A NAME?"** (continued from page 3)

dental hygienists play in recognizing, educating, and assisting those who need it. But perhaps we are preaching to those who already know this.

We need to make our clients aware of the full range of our expertise, experience, and knowledge. Obviously oral hygiene counselling is an important part of our work but



there are many other areas in which we can counsel our clients about ways to pursue a healthier lifestyle. We inform people about the hazards of smoking, the impact it has on their life, and the various programs that are available for cessation and support. We can also recognize signs of substance abuse (drugs and/or alcohol) by conditions in the oral cavity and of the body overall and refer clients to the appropriate person or agency. Through careful conversation and by being aware of the overall appearance and behaviour of a client, a dental hygienist may suspect abuse—child, spousal, or elderly—and refer the client for evaluation and possible intervention, utilizing local support groups or agencies for assistance.

Other visitors to our offices are looking for advice concerning treatment suggestions and options or just an objective ear to hear about problems, sometimes related to oral health, sometimes not.

With such an attentive audience, we have the perfect opportunity to showcase our profession and educate our clients that we really do more than “clean teeth.” Participating in continuing education, reading professional journals, and tapping into the wealth of resources on the Internet provide us with numerous ways of educating ourselves in the many aspects of dental hygiene, whether therapeutic or counselling. We can then pass along this education to our clients and the public. This issue of *Probe* contains valuable information on the relation of diet to oral health and general health so we can help our clients choose appropriate foods for both oral and general health.

So maybe the title “Registered Dental Hygienist” isn't broad enough. Perhaps we should be bold and change our title to “Oral Health Experts!” Most likely, the best that we can do is to educate the public on who we are and what we do and watch the evolution of dental hygiene continue.

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