

The Health Index

ARTIFICIAL TANNING USE IN LONDON-MIDDLESEX

Issue 14, April 2005

KEY POINTS:

- 10% of adults in the City of London and Middlesex County used artificial tanning equipment in the year prior to the survey.
- Use is higher in women and specifically younger women.
- Over one quarter of young women used artificial tanning equipment in the past year.
- Majority of users reported frequencies of 6 or more times in the past year.
- The most common reasons for using artificial tanning equipment was to "get a base tan", "look better", "relax or feel better".
- 10% of users indicated that they did not use protective eyewear all of the time.

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BACKGROUND

The use of artificial tanning equipment by those with lighter coloured skin to achieve a tan is commonly accepted within Ontario and promoted by the artificial tanning industry. The cultural phenomenon of tanning to achieve a healthy and fashionable look can be traced back to the French designer, Coco Chanel, who in 1923, popularized the fashion of tanned skin. Since the 1980's there has been an

increasing emphasis on the use of artificial tanning equipment in many western countries.

However, this practice exposes skin to ultraviolet (UV) radiation which is known to be a human carcinogen¹. UV exposure causes skin and eye damage and in turn is linked to an increased risk of developing melanoma and other skin cancers later in life². While ultraviolet radiation in sunlight contributes to the synthesis of vitamin D and may have other beneficial health effects these benefits are accompanied by an increased risk of skin cancer and other diseases. The World Health Organization (WHO) recommends that artificial tanning equipment should not be used for cosmetic purposes and that therapeutic use of artificial tanning equipment should only be used under medical supervision³. In addition, in March 2005, the WHO recommended that no person under the aged of 18 use artificial tanning equipment⁴. The State of Ohio has already passed a law requiring salons to get written permission from the parents of artificial tanning

equipment users under the age of 18 ⁵. Other areas worldwide have proposed similar laws but face opposition from the artificial tanning industry.

A key priority for the Canadian Cancer Society and Cancer Care Ontario is the reduction of ultraviolet exposure in young adults by the year 2020 ⁶. Specifically, they target a 75% reduction in the percent of young adults (under 35 years old) using tanning equipment by 2020. Current levels of artificial tanning equipment use are estimated to be approximately 30% in women aged 20-29 and 16% of those aged 30-34 having used at least once in the past 10 years ⁶. A 1996 population-based telephone survey conducted in Quebec found that 20.2% of white adults aged 18-60 years old reported that they had used artificial tanning equipment at least once during the five years prior to the survey. The rate of use in the last 12 months prior to the survey was 11.1%. Higher rates were reported in females aged 18-34 years old ⁷. The study also found just over half (57.6%) of those adults aged 18-60 years old that had used artificial tanning equipment during the 12-month period before the study reported fewer than 12 tanning sessions. While 21.4% reported 12-24 tanning sessions, 7.6% reported 25-50 sessions and 13.4% reported more than 50 sessions.

The Ontario Ministry of Health and Long-Term Care Mandatory Health Programs and Services Guidelines ⁸, which all health units in Ontario are required to implement, sets the following behavioural objective to slow the rise in the incidence of skin cancer:

- To increase the proportion of the population of all ages who limit sun exposure, use protective clothing and sunscreens when exposed to sunlight, and avoid artificial sources of ultraviolet light (i.e. sun lamps, tanning booths).

Since 1998, the Middlesex-London Health Unit (MLHU) has actively participated in strategies to:

- promote consumer awareness of the risks of exposure to UV radiation
- engage the artificial tanning industry to improving the safety of their operating practices
- advocate for the establishment of provincial legislation regulating the operation of tanning salons
- support local health professionals in learning about health effects of exposure to UV radiation, specifically from artificial tanning equipment, and
- monitor the use of artificial tanning equipment.

MLHU undertook a Tanning Salon Survey in 1998 ⁹ to assess the condition of the premises and levels of knowledge of tanning salon operators and attendants in relationship to operation of the equipment and the possible health risks associated with use and exposure to UV radiation. The results indicated that generally the tanning salons were maintained in sanitary and clean condition. The main concerns involved regulation of the maximum exposure time, posting of consumer warning signs, health risk knowledge of the attendants and enforcement of the use of protective eye equipment by consumers (goggles).

The artificial tanning industry in Canada has gone largely unregulated. However, on February 23, 2005, the federal Radiation Emitting Devices Regulations (Tanning Equipment) Act (RED Act) came into effect. It now sets out the expectations and technical requirements for the operations of modern tanning devices including:

- A maximum exposure time for the user's first exposure
- A recommended maximum number of exposure times per year be provided to the user based on the characteristics of the lamps and type of tanning equipment

- A way to calculate the exposure times that takes into account skin sensitivity and the characteristics of the lamps.
- Requirements for warnings to consumers related to the use of tanning equipment (including warning signs permanently affixed to the external surface of the tanning equipment) ¹⁰.

This Act provides some guidance for the monitoring of tanning equipment use and enforcement by public health inspectors.

In 2003, MLHU led the development of a series of questions (module) to assess the frequency of use of artificial tanning equipment and other related behaviours on the Rapid Risk Factor Surveillance System (RRFSS). The RRFSS is an ongoing, monthly telephone survey of the general adult population conducted by the Institute of Social Research, York University on behalf of MLHU. It collects approximately 100 telephone responses for the Middlesex-London Health Unit area in monthly increments (waves). Twenty-four of the 36 health units in Ontario have participated in this health surveillance system. Further information on RRFSS and the London & Middlesex sample is provided in the "Methods" section.

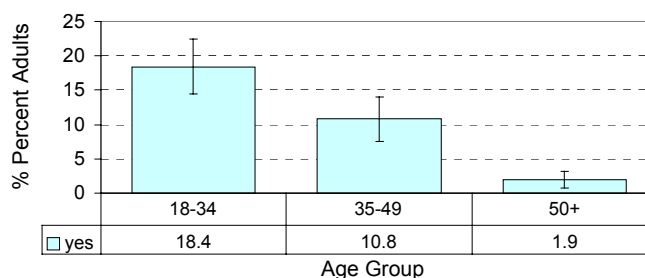
The "Artificial Tanning Equipment" module became available in September 2003 and nine health units have included this module to-date. MLHU included the questions on January 10, 2004 (Wave 37) and continuously for twelve waves through 2004 to the end of wave 48 on January 9, 2005. This Health Index provides the first analysis of the use of artificial tanning data for London & Middlesex collected from 1,204 households in 2004.

USE IN THE PAST YEAR

In 2004, 9.6% ($\pm 1.7\%$) of all adults aged 18 years and older in London and Middlesex County reported having used artificial tanning equipment such as a tanning bed, sunlamp or tanning light for any reason including medical reasons during the 12 months prior to the survey. This rate differed significantly by gender and age group. Overall, the percentage that reported using artificial tanning equipment in the past 12 months was significantly higher among females (13.1%, $\pm 2.6\%$) as compared to males (5.4% $\pm 1.9\%$).

When age groups are considered, rates of use were higher in the younger age groups and decreased with increasing age (Figure 1). Those aged 18-34 had significantly higher rates of use (18.4% $\pm 4.0\%$) compared with those aged 35-49 years old (10.8% $\pm 3.2\%$) and those aged 50 and older (1.9% $\pm 1.2\%$) where the rate was negligible.

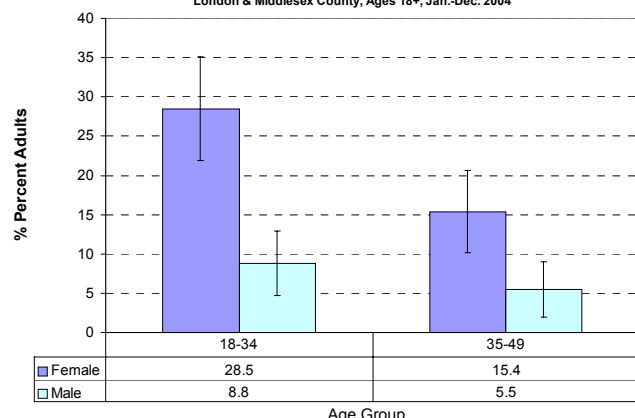
Figure 1: Use of Artificial Tanning Equipment in Past 12 months by Age Group
London & Middlesex County, Ages 18+, Jan.-Dec. 2004



Source: RRFSS, Waves 37-48, 2004

When both gender and age were considered together rates were highest in younger females. Over one quarter (28.5% $\pm 6.6\%$) of females aged 18-34 years old reported having used artificial tanning in the past 12 months. This was significantly higher than the males in the same age group (8.8% $\pm 4.1\%$) as well as males or females in the 35-49 year old age group (Figure 2).

Figure 2: Use of Artificial Tanning Equipment in Past 12 months by Age Group by Gender
London & Middlesex County, Ages 18+, Jan.-Dec. 2004



Source: RRFSS Waves 37-48, 2004

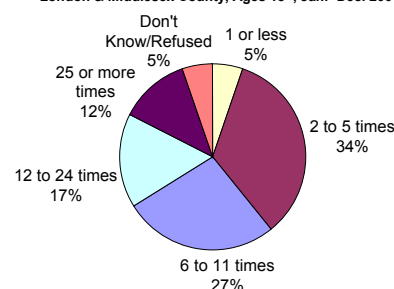
There were no other significant differences found when other socio-demographic were considered, specifically education, income, geography (City of London or County of Middlesex) and home language.

FREQUENCY OF USE

For those nearly 10% of adults aged 18 years and older that used artificial tanning in the past year the majority reported having been frequent users, using artificial tanning more than 6 times. Just over a quarter (27.0% $\pm$ 8.1%) reported having used artificial tanning 6-11 times, while an additional 16.5% ($\pm$ 6.8%) reported having used artificial tanning 12-24 times and 12.2% ($\pm$ 6.0%) reported having used artificial tanning 25 times or more (Figure 3). This means that while approximately 10% of adults use artificial tanning, approximately 6% of adults aged 18 years and over are frequent users of artificial tanning. As with overall use, patterns of frequent users were explored comparing gender and age groups. Although there were emerging patterns for males and females, where middle-aged female users appeared to be more frequent users, due to small sample sizes significant differences could not be detected.

Figure 3: Frequency of Artificial Tanning Use among those Aged 18+ who Reported Using in the Past Year.

London & Middlesex County, Ages 18+, Jan.- Dec. 2004



Source: RRFSS, Waves 37-48, 2004

Just under half of adults aged 18 years and older that used artificial tanning in the past year reported having used artificial tanning in the past month. The percentage of artificial tanning users that had used artificial tanning once in the past month was 10.2% ($\pm$ 5.7), while 24.1% ($\pm$ 8.1) had used artificial tanning 2-4 times, an additional 9.3% had used artificial tanning 5 or more times in the past month. This means that while approximately 10% of adults use artificial tanning, approximately 4% reported having used artificial tanning in the month prior to the survey. Season variation in the use of artificial tanning in the month prior to the survey is expected however due to small sample sizes can not be explored on a local health unit level.

LOCATION OF USE

The most common place to use artificial tanning equipment was tanning salons themselves (67.3% $\pm$ 8.8%) followed by fitness clubs (16.4% $\pm$ 6.9%). Other areas reported include hair salons, medical clinics and spas.

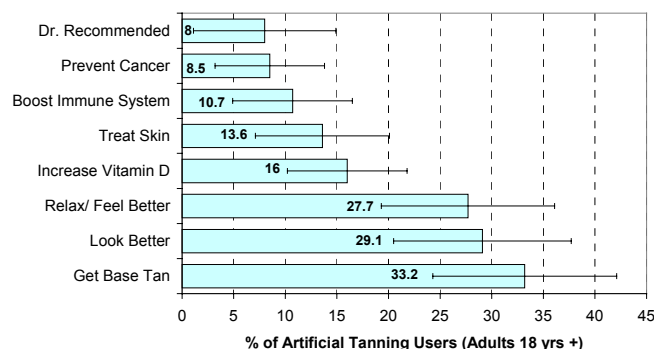
REASONS FOR USING

The most common reasons identified for using artificial tanning equipment were to:

- "get a base tan"
- "look better", and
- "relax or feel better" (Figure 4).

Figure 4: Reasons for Using Artificial Tanning Equipment

London & Middlesex County, Ages 18+, Jan.-Dec. 2004



Source: RRFSS Waves 37-48, 2004

Approximately a third ($33.2\% \pm 8.9\%$) of users identified that the response option to "tan without burning, to get a base tan or to prepare for a vacation" was a very important reason why they used artificial tanning equipment. To "look better, to look fit, to look healthy, or to improve appearance" was identified by $29.1\% (\pm 8.6\%)$ of users while to "relax or feel better" was identified by $27.7\% (\pm 8.4\%)$ of users. In addition to the misconception that artificial tanning can safely develop a base tan, a significant percentage of users identified other myths as important reasons why they used artificial tanning equipment including "to prevent cancer" ($8.5\% \pm 5.3\%$) and to boost their immune system ($10.7\% \pm 5.8\%$).

USE OF PROTECTIVE EYE EQUIPMENT

Use of protective eyewear is mandated by the RED Act and operators are required to provide appropriate protective eye equipment for their clients. However, approximately 1 in every 10 users identified

that they did not always use protective eyewear ($10.1\% \pm 5.7\%$). Seven percent ($7.3\% \pm 4.9\%$) of users and therefore most of those that do not always use protective eyewear reported that they "never" use protective eyewear. Reasons given for not wearing protective eyewear included that "it was not provided", "to avoid tanning lines left on face" and "did not think it was necessary".

SUMMARY AND IMPLICATIONS

The use of artificial tanning equipment is not uncommon among residents of the City of London and Middlesex County. High levels of use were found in younger females and are consistent with the literature. Local anecdotal evidence indicates that younger females are being targeted through marketing by the artificial tanning industry. Concerted efforts should be made to reduce the current level of use of artificial tanning equipment in London & Middlesex. A rate of use in the last year of approximately 5% in those aged 18-34 years in London and Middlesex will mean the achievement of the Canadian Cancer Society's objective of a 75% reduction in the current use of young adults using artificial tanning equipment by the year 2020. Gender specific reductions of the same magnitude would mean targets of:

- 7% use among females aged 18-34, (a reduction of 75% in the current rate of 28.5%), and
- 2% among males aged 18-24 years old (a reduction of 75% in the current rate of 8.8%).

Measures of the frequency of use in the past year indicate that the rate of "heavy users" -those users that have used more than 25 times in the past year- may be lower in London & Middlesex ($12.2\% \pm 6.0\%$) than those rates found in Montreal, Quebec, nearly 10 years ago (29%). The frequency of use should be further examined with a larger sample size in relationship to the reason given for tanning.

Frequency of use may be related to underlying reasons or beliefs as to the benefits of artificial tanning. This was not investigated in this report. Regardless of the learning that may be gleaned from additional research, residents of the City of London and Middlesex County that use artificial tanning equipment have misconceptions about the underlying scientific principles of how artificial tanning works and the health risks involved.

Future public health initiatives should:

- Ensure the inclusion of public health goals related to the reduction of the exposure to UV radiation through the use of artificial tanning in any future direction setting. These goals need to take into consideration recent developments by the Canadian Cancer Society, World Health Organization and the implementation of the RED Act.
- Focus counter-measures and media messaging for younger women to create increased awareness on the risks of artificial tanning use and the misconceptions behind some of the common reasons for using. Efforts need to be sufficient to provide the necessary cultural shift required to encourage the population to adopt the attitude that the skin colour they were born with is beautiful.
- Ensure the artificial tanning industry is meeting regulatory requirements (including the use of protective eyewear).
- Advocate for provincial legislation that would support WHO recommendations and specifically limit risk behaviours in youth and young adults.
- Improve population-level monitoring systems to ensure the monitoring of change in key artificial tanning use indicators on RRFSS every two years. Survey modifications might include

limiting the upper age range for the artificial tanning questions to 59 years old and ensuring that skin colour is recorded for this module.

- Encourage the inclusion of artificial tanning use in youth surveys such as the "Ontario Student Drug Use Survey", another survey administered by the Institute for Social Research, York University.
- Encourage population health research on artificial tanning, including more advanced analysis of the RRFSS data.

METHODS

Data Source

All data are from the Rapid Risk Factor Surveillance System (RRFSS) and are collected for the MLHU (MLHU) by the Institute of Social Research, York University. Data were collected in a series of waves of monthly telephone surveys. Households were selected randomly from all households with telephones in London & Middlesex and respondents aged 18 and older were systematically selected from within each household for the adult that had the next birthday. Once an individual was identified as the person with the next birthday, every effort was made to complete the interview with the appropriate respondent. Although on average five calls were made to a single household, in order to complete the interview with the designated respondent, up to 14 call attempts was standard practice. Response rate was over 60% of eligible households. Questions related to respondent's use of artificial tanning equipment were incorporated into RRFSS in September 2003 and MLHU began collecting data using this module in January 2004 (Wave 37). The unweighted sample for questions related to artificial tanning use was 1,204 respondents from London and Middlesex surveyed from January 13, 2004 through to January 9, 2005.

Analysis Approach

Given that this survey is a random household survey, weights were applied to approximate a random individual survey. Those individuals that did not respond to any individual question were excluded prior to calculating percentages provided the non-response category represented less than 5% of the total respondents. All weighted percentages were provided with 95% confidence intervals. Bar charts include error bars illustrating 95% confidence intervals. Differences in percentages were considered significant at $p < 0.05$. Results were considered unstable and subject to suppression if any of the following conditions existed: denominator of a rate was less than 30, numerator was less than 5 or coefficient of variation was greater than 33.3.

Where applicable, rates were analysed by gender, age group, education level, income, residence (City of London or County of Middlesex) and home language (English or not English).

Questionnaire

Module questions included:

tan_1

During the past 12 months have you used any artificial tanning equipment such as a tanning bed, sunlamp or tanning light for any reason including medical reasons?

Interviewer: If required, tanning creams or lotions do NOT count as using artificial tanning equipment.

- 1 yes
- 3 yes, but R volunteers they use it for medical reasons
- 5 no
- d don't know r refused

tan_2

In the past 12 months how many times have you used artificial tanning equipment?

Interviewer: If required, one tanning session would equal 1 time.

- 0 – 99 enter exact number of times
- 100 100 or more times
- d don't know r refused

tan_3

In the past MONTH how many times have you used artificial tanning equipment?

Interviewer: If required, one tanning session would equal 1 time.

- 0 - 39 enter exact number of times
- 40 40 or more times
- d don't know r refused

tan_4

I'm going to read you a list of some reasons that people use artificial tanning equipment.

Please tell me if each of these is a very important, somewhat important, or not a reason why you use artificial tanning equipment.

tan_4a

To treat a skin condition or other medical conditions?

tan_4b

To tan without burning, to get a base tan, or to prepare for a vacation?

tan_4c

To look better, to look fit, to look healthy, or to improve your appearance?

tan_4d

Because a doctor recommended it?

tan_4e

To relax or feel better?

tan_4f

To boost your immune system?

Interviewer:

If asked, it does not boost your immune system.

If asked, "Boosting your immune system means increasing your ability to stay healthy and fight off illness".

tan_4g

To prevent cancer?

Interviewer: if asked, it does not prevent cancer.

tan_4h

To increase vitamin D?

tan_4i

Is there any other reason you use artificial tanning equipment?

tan_4j

Is this additional reason very important, somewhat important, or not a reason why you use artificial tanning equipment?

tan_5

Where do you go to use artificial tanning equipment?

Interviewer: Do NOT read list. Enter 1 to all that apply.

- @ 1 tanning salon/parlour/studio
- @ 2 fitness club/health club/gym
- @ 3 hair salon/beauty parlour/esthetician or cosmetologist's studio
- @ 4 home
- @ 5 medical clinic
- @ 6 spa or resort
- @ 7 somewhere else
- d don't know r refused

tan_6 [# if more than one place is identified in tan_5 series of questions]

Where do you most often go to use artificial tanning equipment?

- 1 Tanning salon/parlour/studio
- 2 Fitness club/health club/gym
- 3 Hair salon/beauty parlour/esthetician or cosmetologist's studio
- 4 Home
- 5 Medical clinic
- 6 Spa or resort
- 7 Other (specify)
- d don't know r refused

tan_7

How often do you use protective eyewear such as goggles when you use artificial tanning equipment? Would you say all of the time, most of the time, about half the time, less than half the time, or never or almost never?

- 1 all of the time
- 2 most of the time
- 3 about half the time
- 4 less than half the time
- 5 never or almost never
- 6 other (specify)
- d don't know r refused

tan_8

You indicated that you don't wear protective eyewear all of the time. Why not?

- @ 1 Protective eyewear/ goggles was not provided
- @ 2 Goggles were broken
- @ 3 Don't think its necessary/ Didn't know I needed to use it
- @ 4 Raccoon eyes/ appearance/ tanning lines left on face
- @ 5 Uncomfortable/ leaves red marks
- @ 6 Hygiene/ not sanitary
- @ 7 Use my own sunglasses
- @ 8 Other (specify)
- d don't know r refused

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