

## The Prix de Lausanne Health Policy: Why? And how?

### *Context*

Reaching peak performance in classical ballet calls for exceptional physical, mental, technical and artistic skills. At the same time, and despite the high levels of physical exertion involved, ballet's aesthetic criteria encourage dancers to be lean. To achieve what they believe to be the required degree of leanness, dancers very often control their weight by rigorously limiting their energy intake<sup>1</sup>.

This kind of chronic restriction of calories, to maintain excessive thinness, is extremely harmful to a dancer's health in both the short and long term. There is considerable evidence that excessive thinness and malnutrition affects physical growth, pubertal development, morbidity, mortality, cognitive development, reproduction, physical performance and bone health as well as increasing the risk of several adult-onset chronic diseases<sup>2 3 4 5 6</sup>.

Compromising health in pursuit of thinness will not only reduce the dancer's ability to sustain the rigours of a professional career, it can also have severe and extreme consequences. Some of the risks include:

- Cardiac arrhythmia and risk of heart attack
- Kidney failure
- Reduced bone health and risk of stress fractures and osteoporosis
- Reduced or impaired fertility
- Suppressed immune system, leading to risk of infection
- Hair thinning and loss
- Skin problems

Many different factors influence the relationship between energy requirements and nutritional intake, making it extremely difficult for dancers to achieve the right balance between the two. These factors include the number of hours and the intensity of physical activity as well as growth process, intestinal absorption of nutrients, individual metabolism, psychological stress and recovery time after exercise.

Research<sup>7</sup> has shown that 70% of dancers consume less than 85% of the Recommended Dietary Allowance (RDA) of calories. It also shows that they under consume dairy products (and thus calcium) and vitamins<sup>8</sup>. This research confirms what most people in the dance world already know: that dancers, particularly young dancers under pressure to make their mark in a professional environment, can be prone to extreme eating habits in their quest to achieve a lean physique. Dancers'

daily focus on perfection, their extraordinary capacity to sustain hard work and their tremendous 'will power' are a powerful combination in this drive for extreme leanness. In these cases, there is a real risk of behaviour slipping into a specific eating disorder such as Anorexia Nervosa or Bulimia, with all the serious health problems these conditions entail.

The boundary between a fixation on one's own level of leanness and anorexia is very subtle. Under the current worldwide diagnostic criteria [DSM-IV-TR] some very thin dancers do not meet the necessary criteria for the 'best known' eating disorders, anorexia nervosa and bulimia<sup>9</sup>. This may be because some of the requirements of a firm diagnosis must be expressed by the patients themselves, or because some of the criteria are overly vague. If the dancer does not perceive, or will not admit to, a problem with his or her body image, does not endorse these statements or (in the case of a female) claim to have periods more often than once every three months, anorexia nervosa cannot be officially diagnosed.

However, it is important to note that these internationally recognized diagnostic criteria are currently in the process of being revised. The fifth edition of the Diagnostic and Statistical Manual of Mental Disorders [DSM5] – the standard classification used by health professionals – will broaden the definition of currently recognized eating disorders (such as Anorexia Nervosa) and include new recognition of other disorders. This will mean that the number of people considered to be suffering from Anorexia Nervosa and other recognized disorders will increase<sup>10</sup>.

## Process

The Prix de Lausanne takes seriously its responsibility for the dancers in its care during the competition week, and is committed to demonstrating best practice in terms of dancers' health. This is why we have developed and implemented our Health Policy<sup>11</sup>, which requires that all candidates are assessed by the Prix de Lausanne's Consulting Physician prior to their participation in the Qualifying Round to ensure they would be able, if selected, to withstand the rigours of the week in Lausanne without causing long term and serious damage to their health. It is particularly important to avoid exposing dancers who are suffering from Anorexia Nervosa to the pressures of the competition week in Lausanne. Compared to the general population of young people of the same age, Anorexia Nervosa increases the mortality rate tenfold, with 50% of these deaths caused by medical conditions, especially cardiac arrhythmias.<sup>12</sup>

**There is no single tool for effectively and reliably assessing the nutritional status of a dancer and the serious implications of low body weight, taking into account both age and ethnicity. The Prix de Lausanne Consulting Physician therefore evaluates the suitability of each candidate to withstand the rigours of the competition using a process of assessment which takes into account four indicators. This process has been specially designed for the Prix de Lausanne and is based on best practice worldwide.**

## 1. Growth charts

Completed by the candidate, these indicate where there may be issues with the maturation process, which could arise from an imbalance between energy intake and expenditure.

## 2. Gynaecological history

For young women, the stage of pubertal development and frequency of menstruation is assessed. Delayed onset of puberty, infrequent periods (oligomenorrhoea) or absence of periods (amenorrhoea) can all be related to poor nutritional status.

## 3. Eating attitude test

This simple to complete test, validated<sup>13</sup> throughout the world, indicates where risk of eating disorders is present.

## 4. Body Mass Index (BMI)

BMI is widely accepted as the most appropriate measure for indicating nutritional status in adults and young people and is recognized as such by the World Health Organization. BMI is defined as a person's weight in kilograms divided by the square of the person's height in meters (kg/m<sup>2</sup>). By way of example, an adult who weighs 70 kg and whose height is 1.75m will have a BMI of 22.9. For adults over the age of 20, BMI falls into six categories, with a BMI under 18.5 categorized as 'Underweight' and a BMI of 40 or above categorized as 'Obesity Class 3'.

BMI must be considered relative to age. The standards applied by the Prix are based upon the international definition of thinness for children and adolescents aged from 2–18 years published by Cole *et al*<sup>14</sup> in 2007. Cole's study involved 97 876 young males and 94 851 young girls, from birth to 25 years, in 6 different countries (Brazil, Great Britain, Hong Kong, the Netherlands, Singapore, and the United States). This extensive study allowed Cole to establish BMI measures for young people and to identify the BMI value at which underweight becomes an issue. The table below (Table 1) lists the cut off BMI values for thinness grades for boys and girls aged from 2–18 years. Grade 1 is considered as 'underweight'; grade 2 as 'serious undernourishment'; and grade 3 as 'extremely serious undernourishment'.

Table 1

International cut-off points for BMI for thinness grades 1, 2, and 3 by sex for exact ages between 2 and 18 years.

	Boys BMI (Kg/m <sup>2</sup> )			Girls BMI (Kg/m <sup>2</sup> )		
Age (years)	Thinness grades			Thinness grades		
	1	2	3	1	2	3
2.0	15.14	14.12	13.37	14.83	13.90	13.24
2.5	14.92	13.94	13.22	14.63	13.74	13.10
3.0	14.74	13.79	13.09	14.47	13.60	12.98
3.5	14.57	13.64	12.97	14.32	13.47	12.86
4.0	14.43	13.52	12.86	14.19	13.34	12.73
4.5	14.31	13.41	12.76	14.06	13.21	12.61
5.0	14.21	13.31	12.66	13.94	13.09	12.50
5.5	14.13	13.22	12.58	13.86	12.99	12.40
6.0	14.07	13.15	12.50	13.82	12.93	12.32
6.5	14.04	13.10	12.45	13.82	12.90	12.28
7.0	14.04	13.08	12.42	13.86	12.91	12.26
7.5	14.08	13.09	12.41	13.93	12.95	12.27
8.0	14.15	13.11	12.42	14.02	13.00	12.31
8.5	14.24	13.17	12.45	14.14	13.08	12.37
9.0	14.35	13.24	12.50	14.28	13.18	12.44
9.5	14.49	13.34	12.57	14.43	13.29	12.53
10.0	14.64	13.45	12.66	14.61	13.43	12.64
10.5	14.80	13.58	12.77	14.81	13.59	12.78
11.0	14.97	13.72	12.89	15.05	13.79	12.95
11.5	15.16	13.87	13.03	15.32	14.01	13.15
12.0	15.35	14.05	13.18	15.62	14.28	13.39
12.5	15.58	14.25	13.37	15.93	14.56	13.65
13.0	15.84	14.48	13.59	16.26	14.85	13.92

13.5	16.12	14.74	13.83	16.57	15.14	14.20
14.0	16.41	15.01	14.09	16.88	15.43	14.48
14.5	16.69	15.28	14.35	17.18	15.72	14.75
15.0	16.98	15.55	14.60	17.45	15.98	15.01
15.5	17.26	15.82	14.86	17.69	16.22	15.25
16.0	17.54	16.08	15.12	17.91	16.44	15.46
16.5	17.80	16.34	15.36	18.09	16.62	15.63
17.0	18.05	16.58	15.60	18.25	16.77	15.78
17.5	18.28	16.80	15.81	18.38	16.89	15.90
18.0	18.50	17.00	16.00	18.50	17.00	16.00

*Adapted from: Cole and al. Body mass index cut offs to define thinness in children and adolescents: international survey. BMJ 2007; 335: 194<sup>13</sup>.*

BMI values do not take into account different body composition (for example, the proportion of muscle or fat content). It is not helpful to compare BMI across different athletic body types, but a useful comparison can be made within a homogenous population of young dancers. The Prix de Lausanne consulting physician, through many years of experience working with dancers, has devised a scale which is specifically relevant to young dancers and this scale informs his assessment of candidates applying to compete at the competition.

## Conclusion and Recommendations

**Good health is essential to us all, but it is especially important at the high levels of performance which classical ballet demands.**

**Compromising health in pursuit of extreme leanness will not only reduce the dancer's ability to sustain the rigours of a professional career, it can also have severe and extreme consequences. Some of the risks include:**

- Cardiac arrhythmia and risk of heart attack
- Kidney failure
- Reduced bone health and risk of stress fractures and osteoporosis
- Reduced or impaired fertility
- Suppressed immune system, leading to risk of infection
- Hair thinning and loss

- Skin problems

In line with the conclusions of scientific research conducted during previous competitions<sup>15</sup>, the Prix de Lausanne suggests the following four recommendations be observed to ensure that young dancers have every chance of a healthy career in ballet:

Appropriate weight gain should be achieved as the student grows, with maintenance of a BMI above Grade 2 thinness cut-off level (based on Table 1). This means a BMI not below 16 kg/m<sup>2</sup> at the age of 15 years, 16.4 kg/m<sup>2</sup> at the age of 16 years, and 16.8 kg/m<sup>2</sup> at the age of 17 years and 17 kg/m<sup>2</sup> at the age of 18 years.

Pubertal delays must be detected early, before age 16 at the latest, and referred for medical advice.

Eating disorders must be diagnosed when weight and height growth do not meet the normal chart curves, and medical advice sought.

A balanced diet must be recommended, with sufficient dairy products (3 portions a day<sup>16</sup>) consumed to cover calcium needs, at least where Caucasians are concerned. In countries where dairy products are not consumed, green and yellow vegetables, soya beans and fish (if eaten with bones) are also good sources of calcium. Excess intake of non-dairy proteins (such as meat, fish or eggs) of more than 1 portion per day should be avoided. Non-dairy proteins should not take the place of important food groups such as dairy products and fruit and vegetables.

Translated from a text by Dr Carlo Bagutti

Consulting Physician to the Prix de Lausanne

July 2010

## Footnotes

DSM is the Diagnostic and Statistical Manual of Mental Health Disorders published by the American Psychiatric Association. It provides a common language and standard criteria for the classification of mental disorders. The DSM-IV-TR is a text revision published in 2000.

The 2005 official Swiss Society for Nutrition recommendation is to 'consume 3 servings of milk or dairy products a day, preferably low fat varieties'. 1 portion = 200ml milk/150-180grams yoghurt/200g cottage cheese/30-60g cheese. Each day, alternate between 1 serving of meat, fish, eggs, cheese or vegetable proteins, such as tofu. 1 serving = 100-200g of meat or fish (raw weight)/ 2 -3 eggs/200g cottage cheese/60g hard cheese/100-120g tofu. This is in addition to the normal intake of dairy products.

<sup>1</sup> Abraham S. Eating and weight controlling behaviors of young ballet dancers. *Psychopathology*, 1996. 29(4): p. 218-22.

<sup>2</sup> El-Ghannam AR. The global problems of child malnutrition and mortality in different world regions. *J Health Soc Policy* 2003; 16:1-26.

<sup>3</sup> Flegal KM, Graubard BI, Williamson DF, Gail MH. Excess deaths associated with underweight, overweight, and obesity. *Jama* 2005; 293: 1861-1867.

<sup>4</sup> Kushner RF. Body weight and mortality. *Nutr Rev* 1993; 51(5): 127-36.

<sup>5</sup> Wahlbeck K, Forsen T, Osmond C, Barker DJP, Eriksson JG. Association of schizophrenia with low maternal body mass index, small size of birth, and thinness during childhood. *Arch Gen Psychiatry* 2001; 58: 48-52.

<sup>6</sup> Moore SC, Mayne ST, Graubard BI, Schatzkin A, Albanes D, Schairer C, Hoover RN, Leitzmann MF. Past body mass index and risk of mortality among women. *Int J Obes* 2008; 32 (5): 730-9.

<sup>7</sup> Frusztajer, N, et al. Nutrition and the incidence of stress fractures in ballet dancers. *Am J Clin Nutr*, 1990. 51: p. 779-83.

<sup>8</sup> American Psychiatric Association. *Diagnostic and statistical manual of mental disorders*. 4th ed. Washington DC: APA, 2000.

<sup>9</sup> DSM is the Diagnostic and Statistical Manual of Mental Health Disorders published by the American Psychiatric Association. It provides a common language and standard criteria for the classification of mental disorders. The DSM-IV-TR is a text revision published in 2000.

<sup>10</sup> <http://www.dsm5.org/Pages/Default.aspx>

<sup>11</sup> Article 6, Prix de Lausanne Rules and Regulations.

<sup>12</sup> Birmingham CL, Treasure J. Medical management of eating disorders. Cambridge University Press, 2010.

<sup>13</sup> Garfinkel PE, Newman A. The eating attitudes test: twenty-five years later. *Eat Weight Disord.* 2001 Mar;6(1):1-24.

<sup>14</sup> Cole TJ, Flegal KM, Nicholls D, Jackson AA. Body mass index cut offs to define thinness in children and adolescents: international survey. *BMJ* 2007; 335 (7612): 194.

<sup>15</sup> Burckhardt P., Wynn E., Krieg M.-A., Bagutti C., Faouzi M. Nutrition, Puberty and Dancing Influence Bone Density of Adolescent Ballet Dancers. *J Dance Med Sci*, in press.

<sup>16</sup> Walter P, Infanger E, Mülleman P. Food Pyramid of the Swiss Society for Nutrition. *Ann Nutr Metab* 2007; 51(suppl2) : 15-20.

“Adolescence is a time of intense growth and development. There is a great variability in the rate, timing and magnitude of weight gain, changes in height and sexual maturation during normal puberty.”

“There are concerns about (DSM-IV-TR) weight criterion especially the threshold when considering an adolescent underweight. Although formalized diagnostic criteria can be helpful, it is essential to consider the multiple and varied aspects of normal pubertal growth and adolescent development when diagnosing anorexia nervosa.” *Adolescent health care: a practical guide.* Neinstein LS, Gordon CM, Katzman DK, Rosen DS, Woods ER. Lippincott Williams & Wilkins (fifth edition) 2008.

“Anorexia nervosa has the highest mortality rate of any psychiatric conditions, with a standardized mortality rate approximately ten times that of the general population. Suicide accounts for one half of the deaths, medical causes, especially arrhythmias, for the other half.” Birmingham CL, Treasure J. *Medical management of eating disorders.* Cambridge University Press, 2010.

Garfinkel PE, Newman A. The eating attitudes test: twenty-five years later. *Eat Weight Disord.* 2001 Mar;6(1):1-24.