

Structural and Cultural Factors Influencing Physical Activity in Switzerland

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Abstract

The article examines age-specific patterns of physical activity in Switzerland and relates them to a number of structural and cultural background variables. It is argued that the general decline of physical activity throughout the life-course is modified by a number of structural factors. On the basis of an empirical analysis of the Swiss Health Surveys of 1992 and 2002 it is shown that the shape of the curve showing age-specific decline in physical activity varies significantly between different social groups. For Switzerland, the most important effects relate to gender, language region, household size (family situation), financial situation and nationality, whereas educational level and urban vs. rural place of residence appear to play a minor role.

The findings suggest that target specific interventions to increase the level of physical activity are more promising than campaigns aimed at the general population. Even when catering for the need of specific age groups as, for example, the elderly population structural and cultural context must be taken into account to develop programmes that are not only adapted to physiological need but also to the structural and cultural resources and constraints of the target groups in question.

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Introduction and theoretical framework

Numerous studies report an inverse relationship between age and the level of physical activity (Lamprecht 1991, Marti 1993, Shephard 1997, Marti & Hättich 1999, Lamprecht & Stamm 2002, Breuer 2003, Meyer et al. 2005). Beyond the well-documented observation of a general decline of physical activity over the life-course, there is not too much consensus regarding the causes underlying this decline, however. Even the shape of the curve plotting activity levels against age has caused some discussion. Often an inverse linear relationship between the level of physical activity and age has been assumed, but recent evidence suggests that an inverted S-shaped curve resulting from a strong decline during early adulthood and a further steep drop late in life or even a U-shaped curve with two peaks occurring during the youth phase as well as around the retirement age might be more accurate.

The shape of the curve is influenced by a number of factors. With respect to the general decline of physical activity over the life-course, Breuer (2003) distinguishes between three kinds of effects linked to the age of individuals and populations, namely:

- (1) age effects in the strict sense of the word, e.g. changes in health status and physical capabilities over the life course, age-specific time constraints and resources as well as cultural norms associating old age with inactivity;
- (2) cohort effects, i.e. specific historic conditions which affect selected age groups as, for example, changes in the legal framework governing school sports which only are in effect for a limited time¹ or specific measures aimed at selected age groups. Cohort effects may cause specific “bumps” or “throughs” in the activity curve of the population;
- (3) period effects referring to general historical changes affecting various age groups and cohorts, e.g. the general acknowledgement of the positive health effect of physical activity of the past decade which has led to a number of campaigns aimed at a general increase of activity levels in all age groups, changes in infrastructure etc. Period effects would cause larger “bumps” or shifts in the overall curve.

These general effects can be reinforced or hampered by a number of further structural and cultural factors that have been the focal point of sociological research on participation in sports and physical activities (Bourdieu 1978, Gruneau 1983, Lamprecht & Stamm 1995,

¹ In Switzerland, for example, a Federal law prescribing three compulsory sport lessons per week was introduced in 1973. In 1999, however, a less strict formulation was adopted prescribing at least two hours per week, whereas the third hour could also be supplied in the form of sports camps or similar activities.

Cachay & Hartmann-Tews 1998, Wilson 2002). Even though most studies report weakening ties between social position and participation in physical activities, such effects still exist. Among them one would have to mention gender-specific norms regarding physical activity, opportunities and constraints originating from one's educational, financial, occupational or family situation, as well as national and regional differences in infrastructural endowments and cultural orientations toward physical activity.

Gender-specific norms – for much of their history, sports and physical activity were dominated by men – may lead to different curves for men and women, and to gender-specific age and cohort effects. Differing regional or national cultural contexts may not only cause different levels of general activity but also cause different curve shapes for different countries or subpopulations. International comparisons of sports participation suggest, for example, a comparatively highly developed “mass sports culture” in Scandinavian countries and Switzerland whereas South and Central European countries appear to lag behind (COMPASS, without year). Other studies have shown that participation in sports increases with educational attainment both as a result of a longer time period in which one has been familiarized with sports in the framework of compulsory sports lessons and better insights into the connection between physical activity and health. Finally, income, occupational position and family responsibilities all work as constraints as well as context-specific resources facilitating or hampering participation in sport and physical activities.

It is important to note that the mentioned effects can be contradictory: Research suggests, for example, that being male, urban, highly educated and well-off should result in a comparatively high activity rate. However, time constraints from family and job responsibilities as well as the high density of competing leisure opportunities in urban contexts may hamper this effect. Somewhat the same applies to different forms of physical activity. For example, a factor hampering women's sports participation at the cultural level may at the same time increase their propensity to become physically active in other settings (e.g. during gardening or household work). Recent results for Switzerland suggest, however, that there is only a limited degree of compensation between a lack of sports activity and other physical activities, and vice versa. Rather, the relationship between sports participation and other forms of physical activity appears to be neutral with sports being the single most important dimension influencing the level of overall physical activity (Lamprecht & Stamm forthcoming). Finally, there is a strong linkage of some of the above-mentioned age and cohort effects and structural and cultural factors: for example, time constraints resulting from

family or job obligations vary with one's age, and the socialising effect of school sports may vary in different age cohorts due to changing legal frameworks and teaching methods.

As a result of these considerations and in order to get a clear picture of the forces underlying the decline of physical activity over the life course, it is important to consider the cultural and structural context in which physical activities take place. Knowledge of the influence that general cultural and structural factors have on behaviour and attitudes towards physical activity is also a key requirement for the planning of target group specific measures to enhance the level of physical activity.

The article takes up this proposition by discussing age-specific activity levels in Switzerland in the context of a number of cultural and structural variables on the basis of a comparative empirical analysis of the Swiss Health Surveys of 1992 and 2002. Starting from some brief comments on the data and methods used, we shall first present an overview of current levels of physical activity and inactivity in different age groups in Switzerland. These findings are then related to cultural and structural characteristics of the Swiss population influencing the level of the physical activity and thus the shape of the activity curves discussed above in different subpopulations. A further section of the paper is dedicated to a brief discussion of changes that have occurred between the early 1990s and the early 2000s, and finally, we shall draw some preliminary conclusions for public health interventions aimed at increasing the level of physical activity.

Measuring physical activity and structural context

The level of physical activity of populations is usually determined on the basis of survey data. Even though data from direct observations of behaviour or physiological tests might be more accurate, the survey method has a substantial cost advantage. To reduce the problems associated with asking people about their behaviour, the methods and questionnaires used for determining physical activity have become ever more sophisticated over the past few years.²

A case in point is the development of survey instruments in Switzerland. Up to 1992 the Swiss Health Survey (BFS 2003a, 2003b), the most encompassing representative survey of health related behaviour in Switzerland (covering about 19'706 respondents in 2002), only

² See, for example, the efforts undertaken within the framework of the IPAQ (Craig et al. 2003) and EUPASS (Rütten et al. 2003, Rütten and Abu-Omar 2004) projects as well as the Swiss Federal of Sport's recent research on the comparison of different measuring systems (Martin et al. 1999).

included a simple question referring to the number of days per week on which one was sweating due to physical activities during one's free time ("sweating episodes", cf. Calmonte and Kälin 1997). Five years later, in 1997, the questionnaire included additional questions regarding sports activities and physical activities during work, and in the most recent Health Survey of 2002 these earlier questions were supplemented with a measurement of the frequency and duration of physical activities of moderate intensity in everyday life ("being somewhat out of breath", cf. BFS 2003a, 2003b).³

As a result, the most recent Swiss Health Survey renders possible a multidimensional assessment of the level of physical activity in the Swiss population that will be discussed in the following section. It is important to note, however, that an analysis of changes over time, namely a comparison of the 1992 and 2002 Health Surveys, has to be based on the simple indicator referring to the number of "sweating episodes" during one's free time. Due to this limitation of the earlier survey, the following analysis has to be confined to physical activities during one's free-time (not distinguishing between sports and other activities) and has to exclude work-related physical activities.⁴

In the following section the current level of physical activity in Switzerland will be discussed on the basis of a combination of the questions referring to vigorous ("sweating episodes") and moderate activities ("being out of breath") from the Swiss Health Survey of 2002.

Respondents will be classified into five distinctive activity groups according to the degree to which their activity conforms to current Swiss recommendations regarding health enhancing physical activities (Federal Office for Sport et al. 2002: 8).⁵ The stability of these measurements has been successfully cross-checked against a number of other studies regarding sports and physical activity in Switzerland (Martin et al. 1999, Lamprecht & Stamm forthcoming).

In a further step the age specific distribution of activity levels is examined controlling for a number of structural and cultural variables. Seven different age groups ranging from 15-24 years old in ten year steps to 75 years and older are being used. It should be noted that for the older groups some distortions may be present as the Health Survey only covers persons (still)

³ The new design of the questionnaire profited from extensive work by the Swiss Federal Office for Sport which had carried out a number of physical activity surveys between the late 1990s and early 2000s in which different question formats were evaluated (see Martin et al. 1999).

⁴ An empirical study of the different physical activity questions in the 2002 survey suggests that there is no compensatory relationship between physical activities during one's free-time and work-time. Rather, there appears to be a neutral relationship between both components of physical activity (Lamprecht & Stamm, forthcoming).

⁵ The recommendations suggest a minimum of thirty minutes of medium-intensity activities per day.

living at home and able to respond to telephone and written surveys. As a result, estimates for the older groups may be biased towards a higher level of activity that is really present.

The control variables include:

- Gender: The gender effect due to the comparatively late inclusion of women into sports and other physical leisure activities is well-documented in the literature.
- Social status measured on the basis of educational level and household equivalence income (household income corrected for the number of persons living in the household): Research suggests that a higher level of education is conducive to a higher level of activity due to socialisation effects, whereas financial constraints also appear to play a role.
- Language region and national origin: There are three distinctive language regions (French, Italian, German) in Switzerland. These regions as well as national origin (Swiss vs. foreign) can be used to test the hypothesis that general cultural values matter. Earlier studies show that the German speaking population of Switzerland is more prone to engage in physical activities and that the activity level of Swiss nationals is higher than that of foreign nationals.
- Urban vs. rural place of residence: The effect of this variable is not entirely clear. Whereas sports and other leisure infrastructures might be better in urban contexts, better access to natural resources (forests, lakes, rivers) may facilitate a number of physical activities in the countryside.
- Household size: The effect of household size is also somewhat complicated; big households suggest time constraints due to family responsibilities; at the same time, however, members of the same household can become readily available partners for physical activities.

The main body of the text uses simple descriptive and bivariate analyses, in some instances controlling for age effects. Our assessment of activity levels is based on the mentioned indicators of vigorous and medium intensity activities. However, due to a less encompassing measurement of physical activity in 1992, for the comparison of activity levels in 1992 and 2002 only the former of these variables could be used.

The level of physical activity in Switzerland

Table 1 shows the classification of the Swiss population according to their level of physical activity based on the two indicators referring to intensive and medium intensity activities. The first two groups of trained and regularly active persons comprising 36 percent of the population exhibit a level of activity that is more or less in accordance with current recommendations. The next two groups of irregularly and particularly active persons are characterized by a level of activity below the recommendations whereas the inactive group is not or hardly active at all.

Table 1 about here

In accordance with other studies, the general level of physical activity decreases over the life-course. However, we find a differentiated pattern with respect to different activity levels. With respect to the highest level of activity – black in figure 1 – there is the above mentioned inverted S-shape with a sharp decrease after 24 years and another drop after 74 years. However, if this group is taken together with the second group of regularly active persons, we find a second peak in the age group of 65 to 74 years. Thus, the size of the group whose behaviour is in accordance with the recommendations slightly rises around the retirement age. At the same time, the proportion of inactive people increases linearly until the age of 74. The intermediate group of irregular activity shows a more or less constant development with the exception of the oldest group for which activity drops drastically. Finally, the partially active segment grows substantially after 24 years and remains more or less constant up to the retirement age.

Figure 1 about here

In sum, over the life course and excluding the oldest group whose activity level drops mainly due to physical problems of old age, we find an increasing divide between highly active people, on the one hand, and inactive people on the other hand, whereas the moderately active segment appears to be shrinking the older the population becomes.

Cultural and structural factors affecting the level of physical activity

As mentioned in the introductory section, the general findings in table 1 and figure 1 only tell part of the story, as there are various structural and cultural factors affecting the general curve. Against this background, the following figures and tables show the relationship between level of physical activity and age controlling for a number of structural variables.

One of the most important effects discussed in the literature refers to gender differences shown in figures 2 and 3. For most of the 19th and 20th centuries physical activities during one’s leisure – particularly sports – have been dominated by men. However, since the 1960 and 1970s women have increasingly started to become involved in sports beyond compulsory school sports. As figure 3 shows, however, the proportion of young women doing regular physical activities is still considerably lower than that of the corresponding men. On the other hand, the drop in activity between the youngest and the second youngest age group is much more pronounced for the male population. In fact, for the middle age groups, the difference between men and women with respect to a high level of activity becomes quite small. Yet, for men one finds a marked peak after the retirement age leading to a curve with two peaks. Women, too, show a second peak, but the development pattern is a lot smoother and from the 45 to 54 years old towards the oldest group there is a steadily accelerating trend towards inactivity. For the male population, on the other hand, we find a steady linear trend towards inactivity throughout the life-course that only becomes more pronounced for the oldest group. As a result, a larger proportion of men is being “reactivated” during the latter life-stages thus partially offsetting the loss of activity in the younger groups.

Figures 2 and 3 about here

A number of further structural and cultural variables also affect the level of activity. Because of space limitations, we can only offer a summary of the effects of the variables discussed in the introductory section. Table 2 first shows the statistical relationships between the level of activity and these variables. Even though all but one of the relationships (place of residence) are highly significant, the gamma and contingency coefficients are generally quite small in size. On the one hand, this can be interpreted as an indication that social and cultural context has lost some of its former relevance for the explanation of physical activity. On the other hand, it can also be assumed that some of the relationships are not strictly linear.

Tables 2 and 3 about here

This point is illustrated in the last column of table 3 that shows the percentage of the population in the different categories of the structural and cultural variables belonging to the group of “trained” or “regularly active” people.⁶ The table shows that with respect to educational level there are only very small differences whereas the income and language region differences are more pronounced. However, in both cases the relationship is not linear but rather one that distinguishes between two groups: below average vs. over average income and German speaking vs. French or Italian speaking. Yet, even between the two latter regions there are some important differences: In the French speaking part we find a pattern with two clearly defined peaks (15-24 and 65-74 years), whereas there is only a very slight second peak in the Italian speaking part. The same is true for the German speaking part which, however, shows a markedly higher level of activity. These differences are a strong indication that general cultural differences play an important in the explanation of activity levels.

A closer inspection of the age group specific differences in table 3 reveals more of these non-linear relationships which in some instances even change direction or change into a U- or inverted U-relationship. For example, in several instances (educational level for the 45-54 years old, income for the 25-34, 45-54 and 75 and more years old) the participation rate peaks in one of the intermediate categories instead of the highest category, whereas the generally

⁶ The variable for place of residence was excluded from the analysis because the relationships are not significant (see table 2).

positive relationship between being male and physical activity changes direction for the 45-54 year old subpopulation: in this subgroup the share of regularly active or trained women is slightly higher than that of the male population. The same also applies to household size that influences physical activity positively in the youngest and the older groups but negatively in the middle-aged groups. This is a clear indication that family obligations have a negative effect on physical activity.

Due to these intricate relationships between the contextual variables it is not surprising that conventional statistical models fail to explain a large degree of variance in physical activity.⁷ Still, it is important to note that context matters and can play a crucial role in determining the level of activity. As an example table 4 shows a comparison of two “extreme” groups in which factors hampering (“prejudiced group”) and favouring (“privileged group”) physical activity are cumulated.

Table 4 about here

The results show that the share of inactive people in the “prejudiced group” exceeds the corresponding share in the “privileged” group by about four times. The latter group, in turn, has substantially higher shares of partially, irregularly and regularly active as well as trained persons. Thus, even if there are no simple linear relationships, taking structural and cultural context into account may be helpful in identifying target groups when planning interventions aimed at increasing the level of physical activity (see below).

Changes over time

A final question to be addressed concerns changes in physical activity over time. It has often been argued that the growing importance of sports and the diffusion of knowledge concerning the health effects of physical activity as well as the improved health status of the older population and former campaigns aimed at increasing the level of physical activity should

⁷ Polynomial logistic regression models as well as multiple classification analyses with the independent variables shown in table 3 reveal highly significant regression coefficients but only explain between 6 and 11 % of the variance in activity levels.

have led to a long-term increase in physical activity levels. In other words, the activity curves shown in the previous sections should have been shifting up- and outwards over time.

Figures 4 and 5 about here

As the comparison of the Health Surveys of 1992 and 2002 in figures 4 and 5 shows, this does not appear to be the case in Switzerland. Even though the comparison is only based on the question regarding intensive physical activities (“sweating episodes”), the curves for the inactive and active populations for both years are nearly identical. There is only one substantial deviation, namely for women aged 45 to 54 years who appear to be substantially more active in 2002 than ten years before. Together with the slight upward shift of the activity curve for men aged 65 and more (and the corresponding downward shift of the inactivity curve), these findings suggest that some of the recent campaigns aimed at increasing the activity rates of middle-aged persons as well as improvements in adapted activity programmes for elderly people may have had a positive effect on activity rates (see below).

Discussion and outlook

The finding that overall activity rates have not drastically improved during the 1990s despite a number of well-organized attempts to increase physical activity levels, needs some further discussion.

One possible explanation is Ogburn’s (1964) cultural lag argument. The notion of cultural lag purports that cultural norms and correspondent behavioural patterns may lag behind actual societal and economic developments. Thus, opening up physical activity and sports for the population by improving infrastructure and supply may take some time until a sustainable effect on everyday behaviour becomes apparent. In other words: It is easier to build the supply side than to establish a corresponding “culture of physical activity”. This would be an argument to continue existing efforts to increase activity levels. A successful example for such intervention is the so-called “Allez Hop” campaign that started in the mid-1990 and still continues. “Allez Hop” was one of the driving forces behind the current walking boom in

Switzerland which attracted mainly middle-aged women – a segment of the population traditionally characterized by low levels of activity (Stamm et al. 2001).

However, the overall stagnation of activity figures may also be an indication that physical activity has reached some saturation level in Switzerland. In fact, earlier studies on sports participation in Switzerland suggest that the sports boom of the 1960s and 1970s started to cool down during the 1980s (Marti 1993, Lamprecht & Stamm 2002). In this connection it is also important to note that physical activities and sports have substantial opportunity costs in the sense that they must be carried out at the cost of other activities. Even though sports are among the most popular leisure pursuits in Switzerland, it appears that a substantial proportion of the population values other activities even higher.⁸

As a consequence of both arguments it is not enough to just continue with existing campaigns aimed at increasing levels of activity in the general population. Rather it is important to find new and innovative mechanisms to create a “culture of physical activity”. Against this background, the Federal Office of Sports’ current initiatives to promote human powered mobility and to create physical activity networks at the communal level are important steps towards this aim.

In addition, increased attention should be given to target group specific interventions in specific cultural contexts. Our results show that a number of structural and cultural factors favour or hamper physical activity and that there are significant and substantial differences between regions, women and men and according to family situation that should be tackled with specific interventions. At a general level, different approaches for the different language regions of Switzerland appear to be required. These approaches should then be specified for selected target groups, as, for example, foreigners or women with small children.

Such a differentiated approach may also be useful for interventions aimed at the elderly segment of the population (see King et al. 1998). The general promotion of physical activity for the aged is a good starting point but has to be supplemented with offers catering for the specific needs of specific subgroups of the aged population. In this connection it is important to note that a comprehensive policy regarding physical activity for elderly people is lacking in Switzerland and that important suppliers (as, for example, Pro Senectute which currently

⁸ In a recent survey in Switzerland respondents were asked which leisure activities they would like to do more often. Over half of the respondents mentioned „traveling“, „eating out“, „visiting friends“, „reading“, „being with one’s family“ and „doing nothing at all“, whereas „sports“ are mentioned by 48 percent. 14 percent of all respondents even claim that they would like to do less sports (Gurtner & Müller 2005).

offers over 5000 activity courses for over 70'000 participants, see Stamm & Lamprecht 2005) are faced with diminishing financial resources to put their programmes into action.

Further research into the contextual factors influencing physical activity might help identify areas for intervention and thus support an efficient use of scarce resources. As our results show, this research has to be carried out at the national or even regional level. Because of important cultural differences at the national and regional level, research results from other cultural contexts may lead to wrong recommendations.

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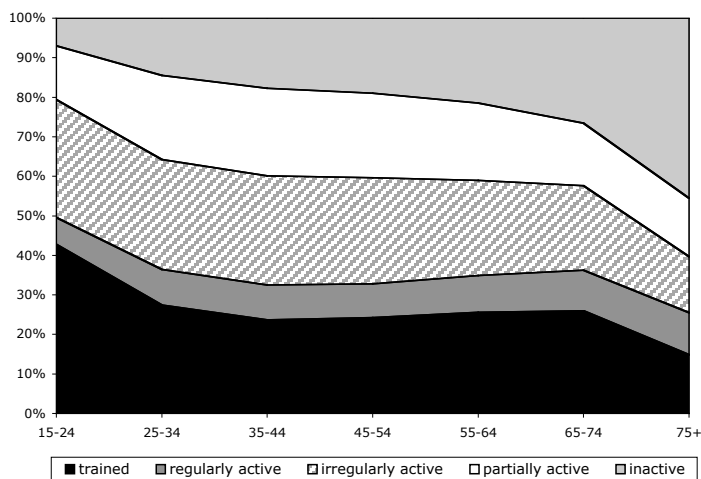
Table and figures

Table 1: Level of physical activity of the Swiss population, 2002

	<i>Percent of Swiss population</i>
Trained: „sweating episodes“ on at least three days per week	27.0
Regularly active: at least five days per week with at least 30 minutes of medium intensity activities („out of breath“)	8.9
Irregularly active: at least 150 minutes of medium intensity activities or two sweating episodes per week	25.6
Partially active: at least 30 minutes of medium intensity activity or one „sweating episode“ per week	19.1
Inactive	19.4

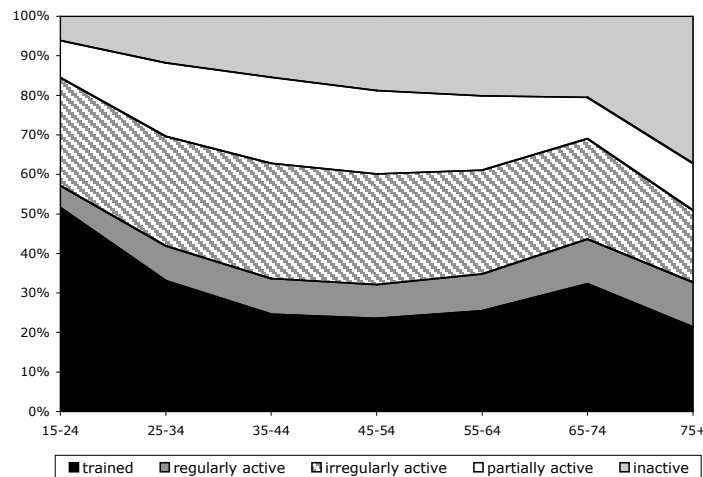
Source: Swiss Statistical Office, Swiss Health Survey 2002, n=18719.

Figure 1: Physical activity in different age groups of the Swiss population, 2002



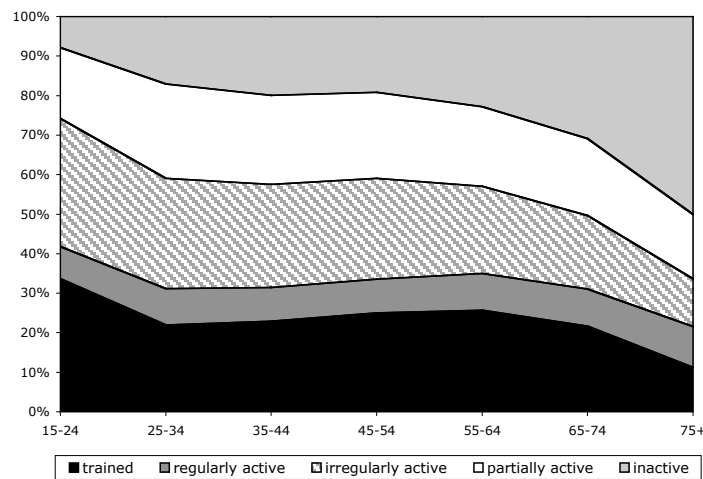
Source: Swiss Statistical Office, Swiss Health Survey 2002, n=18719.

Figure 2: Physical activity in different age groups of the male Swiss population, 2002



Source: Swiss Statistical Office, Swiss Health Survey 2002, n=8272.

Figure 3: Physical activity in different age groups of the female Swiss population, 2002



Source: Swiss Statistical Office, Swiss Health Survey 2002, n=10447.

Table 2: Relationships between level of physical activity and structural/cultural variable (Gamma-coefficients unless otherwise indicated), 2002

Age	-.17*
Educational level	.06*
Household equivalence income	.09*
Gender	-.15*
Household size	.14*
National origin†	.09*
Language region†	.13*
Place of residence (urban vs. rural)	.02 (not significant)

† Contingency coefficient; * Significance $p > .99$, n between 17344 and 18719

Table 3: Proportion (%) of “trained” and “regularly active” population in different age and social groups, 2002

	15-24	25-34	35-44	45-54	55-64	65-74	75 and older	Population average
Educational level								
None, secondary I	49	33	27	25	31	31	21	35
Secondary II	51	37	33	35	35	37	27	36
Tertiary	(35) [°]	37	34	32	40	43	32	36
Significance	n.s.	n.s.	n.s.	*	n.s.	**	**	*
Household income[†]								
under 3000 CHF	47	35	31	33	37	32	24	34
3000-4499 CHF	51	34	33	33	34	36	25	35
4500-6000 CHF	56	40	36	31	36	43	34	38
over 6000 CHF	57	38	35	38	36	43	30	38
Significance	n.s.	*	n.s.	*	n.s.	**	n.s.	**
Gender								
Female	42	31	31	34	35	31	22	33
Male	58	42	34	32	35	44	33	39
Significance	**	**	n.s.	n.s.	n.s.	**	**	**
National origin								
Swiss	51	38	34	34	36	37	26	37
Foreigner	43	32	27	29	27	34	16	31
Significance	n.s.	*	*	n.s.	**	n.s.	n.s.	**
Language region								
German	53	39	35	35	37	37	26	38
French	42	31	25	27	29	35	24	30
Italian	40	31	30	27	28	28	20	30
Significance	**	**	**	**	**	*	n.s.	**
Household size								
1 person	40	41	34	30	32	35	24	33
2 and more persons	50	36	32	33	35	37	27	36
Significance	*	*	n.s.	*	n.s.	n.s.	*	**

[†] Household equivalence income per month; [°] low number of cases

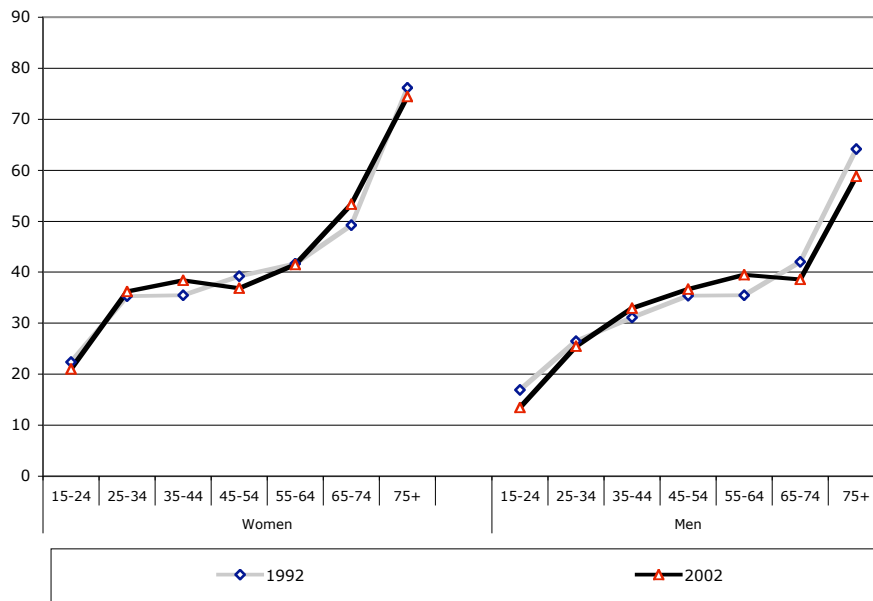
Significances (Chi²): n.s.: not significant; * p > .95; ** p > .99; n between 17344 and 18719

Table 4: Comparison of activity level of two “extreme groups”

	“prejudiced group” (n=164) (foreign females with under-average income and education living in the French or Italian speaking parts of Switzerland)	“privileged group” (n=1324) (highly educated, German speaking Swiss males with over average income)
inactive	47.5%	11.6%
partially or irregularly active	29.4%	50.8%
regularly active or trained	23.1%	37.6%

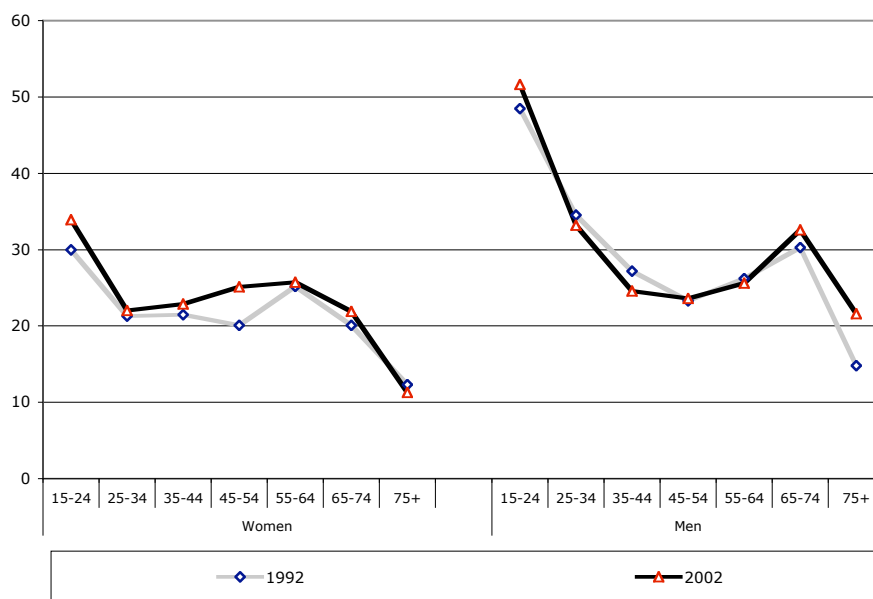
Note: Contingency coefficient of .31 (p > .99)

Figure 4: Proportion of the physically inactive male and female populations in different age groups, 1992 and 2002



Source: Federal Statistical Office: Swiss Health Surveys 1992 and 2002, n=18654 (2002), 15288 (1992).

Figure 5: Proportion of the physically active male and female populations in different age groups (3 and more „sweating episodes“ per week), 1992 and 2002



Source: Federal Statistical Office: Swiss Health Surveys 1992 and 2002, n=18654 (2002), 15288 (1992).