

Promotion of physical activity in a developing country: The Agita São Paulo experience

Victor Matsudo*, Sandra Matsudo, Douglas Andrade, Timoteo Araujo, Erinaldo Andrade, Luis Carlos de Oliveira and Glaucia Braggion

Center of Studies of the Physical Fitness Research Laboratory from São Caetano do Sul (CELAFISCS), Agita São Paulo Program, Brazil. Mailing address: Caixa Postal 268 – CEP 09501-000, Rua Heloísa Pamplona 279 – Bairro Fundação, São Caetano do Sul, São Paulo, Brazil, CEP 09520-320

Abstract

The purpose of this paper is to present key points of an intervention programme (Agita São Paulo Program) to promote physical activity in a developing country. Agita is a multi-level, community-wide intervention designed to increase knowledge about the benefits and the level of physical activity in a mega-population of 34 million inhabitants of São Paulo State, Brazil. The main message was taken from the Centers for Disease Control/American College of Sports Medicine (CDC/ACSM) recommendation that: 'everyone should accumulate at least 30 minutes of physical activity, on most days of the weeks, of moderate intensity, in one single or in multiple sessions'. Activities were encouraged in three settings: home, transport and leisure time. Focus groups were students from elementary schools through to college, white and blue collar workers, and elderly people. Innovative aspects included: (1) a research centre leading the process, (2) scientific and institutional partnerships (over 160 groups), (3) a feasible approach – the 'one-step-ahead' model, (4) empowerment, (5) inclusion, (6) non-paid media, (7) social marketing, and (8) culture-linked. Data were obtained from 645 random, home-based questionnaires over four years – stratified by sex, age, education and socio-economic level. These data show that the Agita message reached 55.7% of the population, and among these, 23.1% knew the main message. Recall of Agita and knowledge of its purpose were well distributed among different socio-economic levels, being known by 67% of the most educated. The prevalence of people reaching the recommendation was 54.8% (men 48.7%, women 61%); and risk of being sedentary was quite smaller among those who knew the Agita message (7.1%) compared with those who did not know (13.1%). In conclusion, based upon the Agita São Paulo experience, it appears that a multi-level, community-wide intervention to promote physical activity may obtain good results if the model contains the items listed above.

Keywords

Health promotion
Physical activity
Programme intervention

Promoting an active lifestyle in the general population as an important tool to prevent the multiple consequences of metabolic syndrome has been difficult in the past. The purpose of this paper is to present some of the experiences of the Agita São Paulo Program, a multi-level, community-wide, physical activity intervention programme that was created in Brazil^{1,2}. The programme was especially addressed to the people in the state of São Paulo. Brazil is in the middle of the epidemiological transition, as shown by an increase in deaths from cardiovascular diseases (CVDs)^{3,4} and obesity prevalence⁵ while experiencing a decrease in infectious and parasitic diseases. CVDs are responsible for the deaths of about 300 000 Brazilians a year, representing one death every two minutes⁶. The rate in São Paulo State (30.8%) is higher than the national average⁷. This can be explained, in part, by the results of several surveys that have indicated a large proportion of Brazilians are not meeting physical activity guidelines. In the São Paulo metropolitan

region, a survey estimated that, in the early 1990s⁸, 69.3% of adults were not sufficiently active and this was truer of women (80.2%) than of men (57.3%). A national survey in 1997 ($n = 2504$) showed that 60% of adults were insufficiently active⁹. The prevalence of inactivity was higher than that of any other risk factor, i.e. diabetes (6.9%), obesity (18%), hypertension (22.3%) or smoking (37.9%).

It is interesting to note that recent epidemiological studies based upon 25 341 men¹⁰ have demonstrated that the cardiovascular death risk is lower among active, fat men than among leaner, sedentary ones; lower among active, hypertensive men than among inactive, non-hypertensive men; and in a similar manner lower among active, diabetic men than among inactive, non-diabetic men¹¹. Moreover, another recent epidemiological study demonstrated that the risk is lower still when highly fit men with three risk factors were compared with inactive men with no risk factors¹².

*Corresponding author: Email matsudo@osite.com.br or celafiscs@celafiscs.com.br

Physical activity has been considered the 'best buy' in public health, since two million deaths per year may be attributed to the consequences of sedentarianism. In 1995, the United States spent 24 billion dollars (9.4% of the total health expenditure) to deal with that problem¹³. It is estimated that sedentarianism costs about US\$ 330 person⁻¹ year⁻¹.

A comprehensive analysis of preceding data shows that, even in developing countries, there is a need for population-wide interventions to increase physical activity and reduce the risks of chronic diseases. However, the greatest challenge is to create population-modification programmes for physical activity that consider the economic, political, social and cultural realities of a developing country. Moreover, if a programme is successful in Brazil, it can serve as a model for other developing countries.

CELAFISCS background

Research centres do not usually conduct intervention programmes. Therefore it is of interest to realise that the Physical Fitness Research Center in São Caetano do Sul (CELAFISCS) in São Paulo, Brazil is an independent, non-profit scientific institution founded in 1974 for the purpose of conducting research on sports sciences in a developing country and to train professionals to conduct such research. During the last 27 years the Center has trained more than 170 professionals in different fields (physicians, physical education teachers, nutritionists, physical therapists, psychologists) from Brazil and other South American countries. CELAFISCS has conducted research on the growth and development of fitness variables throughout a person's life span, assessing the impact of biological maturation, malnutrition, socio-economic level and participation in sports. One line of research determined talent profiles for different sports, and another, which began in 1977, included an ongoing longitudinal study of fitness, physical activity and chronic disease risk factors in young people¹⁴.

Establishment of Agita São Paulo

In 1995, CELAFISCS started to consider how it could make a contribution to the promotion of physical activity. Emerging data on the high prevalence of physical inactivity in the state's population, particularly among the low socio-economic and undernourished groups, indicated that a physical activity promotion effort was needed. The State Secretary for Health in São Paulo requested CELAFISCS to develop a state-wide programme.

Two major challenges had to be faced in creating the programme. First, there was meagre scientific literature on promoting physical activity in developing countries. Second, São Paulo State comprised a population of 34 752 225 inhabitants in a 248 808 km² area with 645

municipalities. The city and metropolitan region of São Paulo was the second largest in the world, with 16 446 000 inhabitants.

A two-year planning process included consultation with the Pan American Health Organization, the US's Centers for Disease Control and Prevention (CDC), the United Kingdom's Health Education Authority, the Institute for Aerobics Research in Dallas, Texas, and advisors from Brazil, the USA, Finland, England and Australia. CELAFISCS developed a programme document delineating the scientific basis for the necessity to promote physical activity in the population, goals, target populations, strategies, actions, and desired results of the programme for São Paulo State. After the preparation phase, 'Agita São Paulo' was launched in December 1996 with support from multiple state governments, non-governmental organisations and the private sector (Fig. 1).

The name Agita was selected after two years' consideration with the assistance of professional marketing consultants; it is a special word that represents not only the desire for physical activity, but also includes considerations of the mind, social health and citizenship.

The scientific basis

Multiple models were used to guide the design of the programme because a variety of intervention strategies were needed. The Transtheoretical Model¹⁵ was applied to the assessment of changes in the readiness of various subgroups and the selection of change methods relevant to people in each stage. The 'one-step-ahead model' expressed the aim to help people at each stage and progress to the next stage. Other methods used were:

- Social Cognitive Theory¹⁶;
- community planning for partnership and health promotion^{17,18}; and
- social marketing^{19,20}.

The preceding models were useful to conceptualise particular intervention components, but most of the

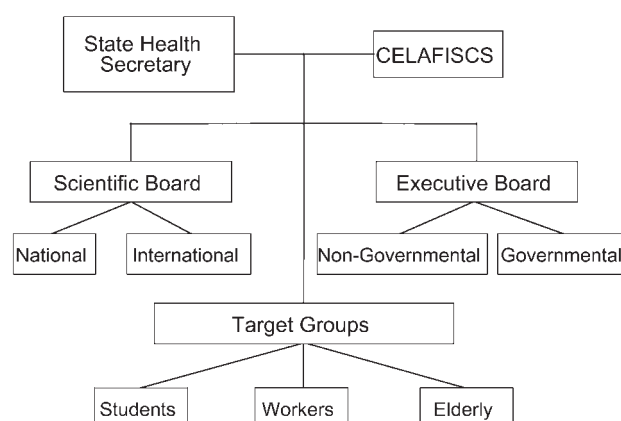


Fig. 1 Functional organisation of Agita São Paulo

models addressed the education of individuals or groups; the reliance on educational approaches may be one reason for the disappointing results of previous change efforts in communities²¹. Consequently, ecological models were used to plan and co-ordinate changes on multiple levels^{21–23}. Mass communications and community organisations were used to enhance social influences for physical activity. Community organisation partnerships were used to create sustainable changes in institutions. Government partnerships led to policy changes that supported physical activity, including improvements in the physical environment.

Target group segmentation is extremely important in Agita São Paulo due to the extreme ethnic, economic, geographic and cultural diversity of the population. Literature on mass media and health promotion was consulted for guidance because mass media was expected to be included in the mix of interventions²⁴.

The goal of Agita

The goals of the Agita programme were to increase the population's knowledge of the benefits of physical activity for health (biological, psychological, social) and to increase participation in moderate physical activity, upgrading each person's stage of physical activity by at least one level – a principle of the Transtheoretical Model¹⁵. The programme aims for the sedentary to be at least irregularly active, the irregularly active to be regularly active, the regularly active to be very active, and the very active to maintain that level while reducing the risk of injuries. The goal of the programme is to increase the level of knowledge by 50% and the level of physical activity by 20% in 10 years (2% per year).

The Agita message and target groups

Traditional health promotion guidelines for physical activity do not usually obtain population adherence because of the suggested duration time of 50–60 minutes, the high intensity of effort (70% of maximal heart rate or over) and requests for a medical screening.

The Agita São Paulo programme adopted the current public health recommendation for adults based on new evidence of the cumulative benefits of moderate-intensity physical activity. This recommendation is to accumulate at least 30 minutes of moderate-intensity physical activity on most, and preferably all, days of the week²⁵. The activity can be performed continuously or accumulated in sessions of 10 to 15 minutes. This recommendation is endorsed by different international organisations such as the World Health Organization (WHO), CDC, American College of Sports Medicine (ACSM) and American Heart Association (AHA) amongst others²⁶, and adopted in national campaigns in Canada, England and Australia.

The recommendation emphasising the accumulation of

moderate-intensity physical activity is particularly relevant for the São Paulo culture. In the São Paulo metropolitan area, lack of time is perceived as a major barrier to being active^{27,28}, so accumulating activity in brief sessions may be perceived as more feasible. Similarly, moderate intensity is more likely to be accepted in a hot, tropical country than a vigorous activity programme.

Three main target groups were identified: students (children and adolescents), the elderly and workers (blue and white collar). Programmes and materials were developed for each target group.

Agita structure

Partnership

To face the programme development challenge, partnerships were adopted as a key strategy. Intellectual partnerships were instrumental in obtaining experiences from other national and international programmes. Thus, several professionals with well-established expertise in intervention were invited to visit the Agita Center, and to compose a national and international scientific board.

The Governmental and Non-Governmental Organizations Partnership represents the key factor of Agita's success. More than 150 strong institutions comprise its Executive Board, which discusses main Agita actions at its monthly meeting. Different society sectors are represented on that board, such as education, sports, health, industry, commerce and services²⁹.

Scientific and Executive Board

The structure of Agita São Paulo shows the relationship between the Scientific Board and the Executive Board; intersectoral, but mainly intrasectoral, balance seemed to be of utmost importance. For example, when support of the Industry Federation was obtained, the Chamber of Commerce was solicited; when the Lions Club's support was obtained, the Rotary Club was solicited. In academic circles, the same trend was used; federal, state and private universities were also encouraged to join.

Empowerment

Another important approach was to empower existing programmes instead of preparing a new agenda for them. This gave a common flag to all groups; the combined programme developed a strong identity in cause and diversity in action.

Agita programme details

Inclusion

Agita reflects the inclusion and diversity concerns with its 'inclusion principle'; this is also clear when the main messages were selected, i.e. 'active living' and 'physical activity for health' substituting for the traditional and ineffective 'sport' and 'fitness' jargons.

One-step-ahead

The 'one-step-ahead model' is another example of the inclusion process allied to the Transtheoretical Model. In that approach, instead of a general message, targeted messages were developed asking the sedentary to become more active; the somewhat active to be regularly active; and those who were already active or very active, to remain active without injuries¹.

Culture links

The 'half-hour man' became the mascot of the campaign, reflecting the attention to culture aspects, since fun is a crucial factor for Brazilians. A 'half-hour woman' and a 'half-hour cowboy' were created, attempting to adapt to regional cultures and genders; a 'half-hour seashoreman' was also selected from an inter-school contest.

Agita settings

Three settings were selected: home, transport and leisure time. Everyday home activities were the most reinforced, concentrating on the importance of walking (even while walking a dog), gardening, home chores, avoidance of sedentary behaviours (sitting, watching TV); endeavours were made to give meaning to home activities while using humour to attract the Brazilians' attention. Walking and stair climbing were stimulated in the transport setting. Dance became the most important inclusion message among leisure activities because children, adolescents, adults and the elderly can dance, and Brazilians love to dance.

Educational materials

The biological benefits of active living were listed in the guideline materials^{30,31}; however, these are long-term benefits not easily perceived by the normal population. The benefits of mental and social health were stressed since they seemed to be more effective in changing behaviour, as people could 'feel' and observe them in a shorter time. In other words, it is easier to feel changes in mood or self-esteem than to notice changes in body plasma, cholesterol or glucose.

Medical Committee

Medical groups deserve special attention³². The Medical Committee's activities determined that medical doctors had a low knowledge level for prescribing exercise. Because the traditional culture is to 'prescribe a medicine for each health problem', the 'Agitol' or the 'formula for active living' was developed that could be taken in doses of 30, 15 or 10 minutes – presented in a typical pharmaceutical format. A good sense of humour made Agitol quite popular among health professionals, and a good example to encourage shifting from the traditional 'treatment disease' to a 'health promotion' approach.

Physical activity among teenagers

Data from the Agita Lab showed that physical activity is declining among boys of lower socio-economic status, where classes C, D and E (lower, poorer) were less active than classes A and B (higher, richer). This is understandable because urban changes have decreased safety on the streets and the availability of appropriate activity space³³. Brazilian boys are less involved in sports activities than US boys, and watching TV is their first option for use of free time³⁴. The problem is important because they watch TV for about four hours a day; and even more among girls and low socio-economic groups. This behaviour impairs all fitness indices such as adiposity, lower-limb strength, anaerobic power and mainly aerobic power³⁵.

Moreover, physical education is in crisis all around the world. This is more marked in Latin America, where the number of weeks of classes is decreasing, physical education is not implemented in 50% of schools and is conducted under inadequate conditions in 100% of cases³⁶.

This research provided information to be applied in the target message approach and educational materials were developed – like the physical activity pyramid. In the pyramid, TV watching was listed as the least desirable behaviour, at the top, while everyday physical activity was placed at the bottom, being the most recommended. The nutrition pyramid was printed with the physical activity pyramid (Agita message), permitting the two to reach the population together; it was sent to more than six million students.

Andrade and other colleagues from our Center observed that girls from low socio-economic regions were more involved in vigorous physical activity than boys at the same age³⁷. This was a surprise because literature systematically reported a superiority of boys regarding levels of physical activity. However, this information was mostly based on samples from well-developed countries. Our case sample consisted of girls from Ilhabela, an ocean island between Rio de Janeiro and São Paulo, where local culture probably played an important role. When we analysed the data further, it was observed that the main reason for this was explained by the girls' involvement in strenuous housekeeping, which was much more evident in girls (41.7%), than boys (5.9%). In fact, 70.5% of the boys answered that they were 'not at all' involved in strenuous housekeeping activities! However, when transportation to and from school was analysed, 100% of the boys utilised active transportation compared with only 57.1% of the girls.

Agita mega-events

Realising that knowledge cannot change behaviour *per se*, creative and radical interventions are necessary. Therefore, three mega-events are usually organised each year, one for each target group: the Agita Galera Day – that

means 'agitate the crowd' or the Active Community Day – dedicated to the school communities; the Active Worker Day for labourers; and the Active Elderly Day.

Agita Galera Day

The Agita Galera Day has been held for the past five years on the last Friday of August, when over 6000 public and private school students discuss the positive effects of active living; they later walk through the streets. They also discuss methods to establish permanent actions promoting active school setting environments. It has involved more than six million students and their communities; the preparation requires war-like logistics efforts, including training hundreds of educational and healthcare professionals in the 640 state cities. A special educational manual was prepared, and sent to all school systems, sensitive teachers, health providers and the media, in an approach to encourage active living that even includes a cable TV teleconference.

A concerted effort has been made to show that an active-living culture cannot be the responsibility of physical education teachers only, but it is a responsibility of all teacher disciplines, and examples were given to the other teachers. Although many activities were scheduled for Agita Galera Day, the central theme was to discuss the benefits of active living for 15 to 20 minutes during regular school classes, and then have a community walk or other physical activity. The outcome was fantastic with crowds of students occupying the streets and main squares from the very small to the large cities of São Paulo. A helicopter brought the State Secretary of Health to the so-called mega-focus of Agita, to recognise the efforts of the different communities.

Active Worker Day

In order to promote physical activity in the workplace, a tailored set of education materials, involving manual, folders, banners, booklets and stickers, was made. Information in the materials included short explanations focusing on the healthy benefits of physical activity, offering suggested durations, frequencies and intensities. Beyond the Agita São Paulo suggestions, an important point to attain success for intervention strategies is to consider the institutional perspectives in preparing information according to the different groups' needs. Several interesting experiences have occurred, since lectures are given at the beginning of the workday journey until stopping the assembly line, as in General Motors – Brazil, to read and discuss about the benefits of active living. Another important point has been the direct participation of labour unions through their communication system to the employees, trying to promote the importance of active daily living. In the last several years, we have estimated that over five million employees from different industries have participated in the Active Worker Day.

Active Elderly Day

The Agita São Paulo programme has developed specific material to distribute and spread the message to the elderly population. The programme produced a brochure and a poster for this specific group in which it calls attention to how people can get and maintain their functional independence by being physically active. A mega-event is organised every year on the occasion of the national and international elderly day at the end of September. It has been a walking event in order to promote the joining of generations to celebrate the special fact of being alive. In this event, sun hats, a special bag with the brochures, hand fans and some sweets are provided because the people love to get gifts and to take something home. The walking day includes a short walk (no more than 30 minutes) in the cities' green parks and is combined with some recreational and leisure activities, including dances, games and assistance for other elderly groups.

Agita media exposure

Mega-events like Agita Galera Day are crucial in bringing media attention to the programme. There is a special section in Agita headquarters to follow-up on the impacts of these activities. The media impact might be recognised by a potential TV audience of 21 million people a year, representing the impressive amount of almost 13 million dollars savings per year (non-paid media approach). Strong supportive reports were published in 28 state and 42 regional newspapers, two national and eight international magazines, and broadcast on seven state and four national TV programmes. These reports have a special significance since Agita does not spend any financial resources for media exposure – the so-called 'non-paid media approach'. Agita developed a media surveillance service that tracks how many newspaper columns are published, their seasonal variation, and in what regions. The media coverage areas per year include over 39 399.80 cm², which represents an average of 237.6 cm² per article of media coverage³⁸.

Special Agita promotional activities

As mentioned earlier, culture and social manifestations are essential elements in the Agita programme. Special intervention promotions were developed for Carnival; a special hand fan was distributed during the samba-school parade and a 'half-hour woman' and a 'half-hour seashoreman' were developed to attract gender and regional attention.

Agita has used several marketing materials. Red sticker marketing materials became popular national-wide. Most of those did not require any Agita funding. For example, electricity company bills with our message imprinted reached seven million families, our message was displayed in the largest, private soccer stadium and at

the metro stations (over two million people a day), and messages were broadcast on truck drivers' radio-station programmes.

Nutritional issues in the Agita model

Special attention is dedicated to nutritional issues and to the consequences of the metabolic syndrome in the Agita programme, e.g. the combination of the nutritional and physical activity pyramids. Joint efforts were developed with other advocacy groups such as for nutrition (Brazilian Multi-professional Society for Infancy and Maternal Nutrition), obesity (The Brazilian Association of the Studies on Obesity (ABESO)), diabetes (The National Association for Assistance of Diabetics (ANAD) and The Juvenile Diabetes (ADJ)) and hypertension (The Association of Protection and Friends of Hypertension). Presentations were conducted at their major conferences, invitations were received to publish editorial articles³⁹ in their journals and Agita may review research projects that develop^{40,41}.

A good example of the transitional phase, represented by a decline in physical activity and probable increase in calorie intake, is given by two studies developed in Ilhabela, the ocean island between Rio de Janeiro and São Paulo. Teodosio *et al.*⁴² verified adiposity and weight secular trends (1980–2000) among boys and girls from a low socio-economic region, i.e. an increase of 10.7% in weight, 12.2% in total adiposity and 21.6% in central adiposity. Meanwhile, a negative secular trend was observed in physical fitness variables for upper-limb strength (–35.5% in boys and –28.9% in girls); no changes were found in lower-limb strength or cardiorespiratory variables⁴³.

Nutrition and physical activity profiles were analysed in

an elderly target group of the Agita programme, comprising 71 women over 50 years of age⁴⁴. Significant increases in exercise frequency (48%) as a consequence of the Agita message, involvement in moderate physical activity (123%) and walking duration (150%) were reported; no changes in body composition were observed, probably because of the short time of intervention. However, it was noted that women who received physical activity advice presented a positive change in nutrition intake, even without any nutritional orientation. Those women spontaneously decreased total calories (from 1581.4 to 1316.6 kcal day^{–1}) and fat intake (from 65.4 to 48.2 g day^{–1}), suggesting that active lifestyle promotion may enhance other healthy behaviours, including nutritional habits.

In another study within the Agita programme, the relationships among nutrition behaviour, physical activity and mental well-being were explored through measures of self-image. It was shown that, among adolescents under a restricted diet, those who were regularly active (1734 kcal day^{–1} total intake) presented higher values of self-image satisfaction than those who were more sedentary (1565 kcal day^{–1} total intake) although they reported similar total calorie intakes⁴⁵.

Another interesting feature developed by the Agita São Paulo team⁴⁶ is that among 41 elderly women (aged 50 to 69 years), body image seems to be more related ($P < 0.05$) to body weight ($r = 0.52$ to 0.67), body mass index ($r = 0.57$ to 0.74) and adiposity ($r = 0.45$ to 0.59) than to calorie intake ($r = 0.11$ to 0.41).

Agita São Paulo outcomes

The evaluation process included surveillance by central office and outside groups and included measurements of

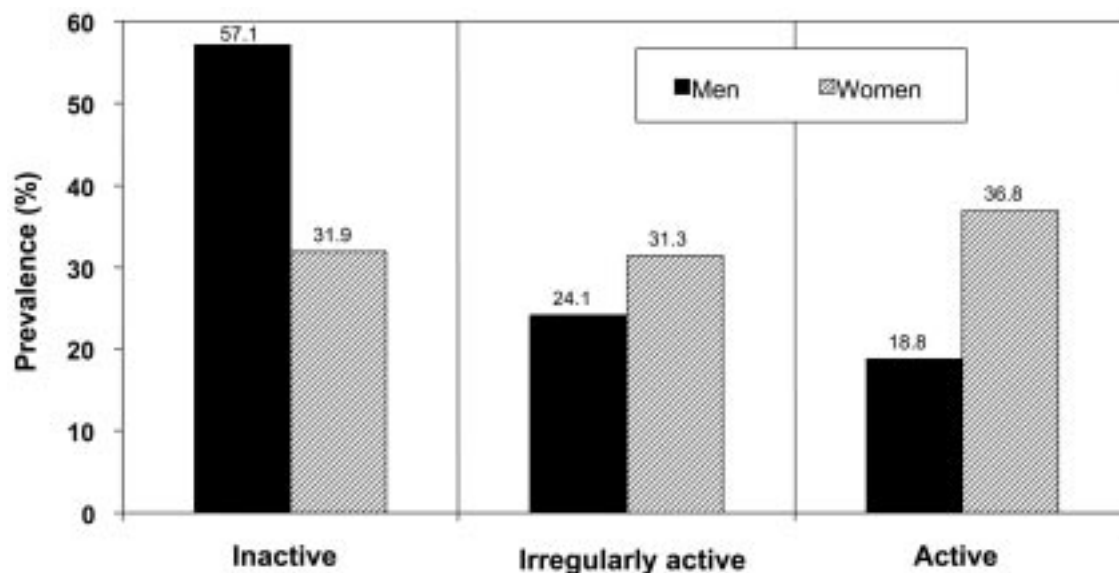


Fig. 2 Physical activity prevalence among men and women ($n = 645$) in São Paulo metropolitan region

Table 1 Participation in recommended physical activity, included walking, among men and women from São Paulo metropolitan area

Gender	Participation (%)	95% CI*
Overall	54.8	50.6–59.0
Male	48.7	42.8–54.6
Female	61.0	55.1–66.8

* Interval of confidence.

physical activity levels, physical activity knowledge, barriers, attitudes, behaviour stage and knowledge about the programme.

Data were obtained from a home visiting survey of 645 randomly selected homes. These data, stratified by sex, age, education and socio-economic level, revealed that 55.7% had heard about Agita; among those, 23.1% knew the main message, over 60% of the best educated had heard about Agita, and 37% knew about the Agita purpose. Recall of Agita and knowledge of its purpose were well distributed among different socio-economic levels, being known by 67% of the most educated.

Figure 2 shows that 18% of men and about 36% of women were already reaching the CDC/ACSM recommendation after four years of the programme. Because walking is an important strategy of Agita, it was of interest to analyse the influence of that behaviour on physical activity levels. When walking was included, 54.8% of the total sample had reached the CDC/ACSM recommendation, 48.7% among men and 61% among women (Table 1).

The prevalence of those who reached the CDC/ACSM recommendation, as related to Agita message knowledge, was analysed in an attempt to verify the impact of the programme on physical activity levels more specifically. Table 2 clearly shows that the chances of reaching adequate levels of physical activity were higher among those who knew the Agita purpose and objectives (43.0%) than among those who did not (35.3%). The influence became more marked when walking was included (Table 3); overall inactivity declined to 10.9%, but the risk of being inactive was almost double among those who did not know the Agita purpose (13.1%) compared with those who knew the programme objectives (7.1%).

These are remarkably lower than the index of 69% of sedentarianism obtained 10 years ago, supported by

Table 2 Participation in recommended physical activity as related to knowledge of the Agita purpose, excluding walking, in São Paulo metropolitan area

Know principal objective?	Participation (%)	95% CI*
Overall	38.1	32.5–43.7
Yes	35.3	28.4–42.2
No	43.0	33.5–52.5

* Interval of confidence.

Table 3 Participation in recommended physical activity as related to knowledge the Agita purpose, including walking, in São Paulo metropolitan area

Know principal objective?	Participation (%)	95% CI*
Overall	10.9	7.2–14.5
Yes	13.1	8.1–18.0
No	7.1	2.0–12.1

* Interval of confidence.

recent findings of Andrade *et al.*⁴⁷ suggesting that Agita played some role in the change because inactivity was more prevalent among those who did not know the programme. The level of physical activity declined, as in other countries, as age increased, although moderate walking messages were more popular among middle-aged adults and elderly groups than among young adults⁴⁸.

A school setting intervention revealed a marked increase ($P < 0.05$) in the time involved in vigorous physical activity among girls and boys, 11–14 years of age⁴⁹. These results are consistent with the increased physical activity knowledge in those groups in that time period⁵⁰.

Table 4 shows some of the factors the programme co-ordinators considered the most important to emerge from the Agita experience.

National and international impact

The Agita São Paulo programme has diffused to other states, developing the Brazilian Networking and launching the Agita Bahia and the Mexe Campina among others, which caused the Ministry for Health to request the Agita Center to organise Agita Brazil. The CELAFISCS research centre was also requested to support other countries, e.g. Colombia (Muevete Bogota, Risaralda Activa), Argentina (Amoverse) and Uruguay (Movete Uruguay), to launch their programmes.

WHO considers Agita as a model, and it is published in the World Health Report; the Pan American Health

Table 4 Lessons from the past for guidance in the future: key factors emerging from the Agita São Paulo experience

The inclusion principle
Intellectual and institutional partnership principle
Inter- and intrasectoral partnership balance
Empowering the partner institution agenda
Similar in cause and diverse in action
Scientifically sound
Non-paid media approach
Clear, simple and feasible message
Cultural adaptation
One-step-ahead model
Surveillance
Links with other risk-factor advocacy groups

Organization in conjunction with the CDC is supporting the creation of the network to promote physical activity in the Americas, the Agita America.

Conclusions

In conclusion, based upon the Agita São Paulo experience, it appears that a multi-level, community-wide intervention to promote physical activity may obtain good impact if it considers the following factors in the model: (1) inclusion principles; (2) intellectual and institutional partnerships; (3) inter- and intrasectoral partnership balance; (4) empowerment of the partner institution agenda; (5) similarity in cause and diversity in action; (6) scientific soundness; (7) non-paid media approach; (8) clear, simple and feasible messages; (9) cultural adaptation; (10) one-step-ahead model; (11) surveillance; and (12) links with other risk-factor advocacy groups.

References

- Matsudo VKR. Passport for health. *World Health Org. Rep.* 1997; **3**: 16–7.
- Matsudo VKR, Andrade DR, Matsudo SMM, Araujo TL, Andrade E, Figueira AJ Jr, Oliveira LC, Braggion G. Physical education, health and well-being. In: *Proceedings of the World Summit on Physical Education*. Berlin, Brazil: ICSSPE, 2001; 85–94.
- Ministério da Saúde Programas e Projetos Doenças Cardiovasculares [Online]. Available at <http://www.saude.gov.br/programas/cardio/cardio.htm> Accessed 6 July 2000.
- Barreto ML, Carmo EH. Determinantes das condições de saúde e problemas prioritários no país. In: *Proceedings of XI Conferência Nacional de Saúde, Brasília*. Brasília, Brazil: Ministério da Saúde, 2000; 1–13.
- Monteiro C, Benificio M, Conde W. Shifting obesity trends in Brazil. *Eur. J. Clin. Nutr.* 2000; **54**: 342–6.
- Lotufo PA. Mortalidade precoce por doenças do coração no Brasil. Comparação com outros países. *Arquivos Brasileiros de Cardiologia* 1998; **70**: 321–5.
- Ministério da Saúde. *Datasus* [Online]. Available at <http://www.datasus.gov.br/cgi/tabcgi.exercicio>. Accessed 23 February 2001.
- Rego A, Berardo F, Rodrigues S. Fatores de risco para doenças crônicas não transmissíveis: inquérito domiciliar no município de São Paulo, SP (Brasil). Metodologia e resultados preliminares. *Revista Brasileira de Saúde Pública* 1990; **24**: 277–85.
- DATA FOLHA. Levantamento nacional de atividade física, *Jornal Folha de São Paulo*, São Paulo, Brazil, 1997.
- Farrell SW, Kampert JB, Kohl HW III, Barlow CE, Macera CA, Paffenbarger RS Jr, Gibbons LW, Blair SN. Influences of cardiorespiratory fitness levels and other predictors on cardiovascular disease mortality in men. *Med. Sci. Sports Exerc.* 1998; **30**(6): 889–905.
- Kohl H. What is the magnitude of risk for cardiovascular disease associated with sedentary living habits? In: Leon A, ed. *Physical Activity and Cardiovascular Health – A National Consensus*. Champaign, IL: Human Kinetics, 1997; 26–33.
- Blair S, Kampert JB, Kohl HW, Barlow CE, Macera CA, Paffenbarger RS, Gibbons LW. Influences of cardiorespiratory fitness and other precursors on cardiovascular disease and all-cause mortality in men and women. *JAMA* 1996; **276**: 205–10.
- Centers for Disease Control and Prevention (CDC). *Promoting Physical Activity: A Best Buy in Public Health*. Hyattsville, MD: CDC, 2000.
- Oliveira LC, Matsudo V, Matsudo S. CELAFISCS – XX years of history in sports sciences. In: *Proceedings of XIX International Symposium on Sports Sciences, São Paulo, Brazil*. São Paulo, Brazil: CELAFISCS, 1994; 5–18.
- Prochaska JO, Marcus BH. The transtheoretical model: applications to exercise. In: Dishman RK, ed. *Advances in Exercise Adherence*. Champaign, IL: Human Kinetics, 1994; 161–80.
- Bandura A. *Social Foundations of Thought and Action: A Social Cognitive Theory*. Vol. 110. Englewood Cliffs, NJ: Prentice-Hall, 1986; 1–386.
- Bracht N, Kingsbury L, Rissel C. A five-stage community organization model for health promotion: empowerment and partnership strategies. In: *Health Promotion at the Community Level 2: New Advances*. Newbury Park, CA: Sage, 1999; 83–104.
- Minkler M, Wallerstein N. Improving health through community organization and community building. In: Glanz K, Lewis FM, Rimer BK, eds. *Health Behavior and Health Education: Theory, Research and Practice*, 2nd ed. San Francisco, CA: Jossey-Bass, 1997; 241–69.
- Donovan RJ, Owen N. Social marketing and population interventions. In: Dishman RK, ed. *Advances in Exercise Adherence*. Champaign, IL: Human Kinetics, 1994; 249–90.
- Lefebvre R, Rochlin I. Social marketing. In: Glanz K, Lewis FM, Rimer BK, eds. *Health Behavior and Health Education: Theory, Research and Practice*, 2nd ed. San Francisco, CA: Jossey-Bass, 1997; 384–402.
- Sallis J, Bauman A, Pratt M. Environmental and policy interventions to promote physical activity. *Am. J. Prev. Med.* 1998; **415**: 379–97.
- McLeroy KR, Bibeau D, Steckler A. An ecological perspective on health promotion programs. *Health Educ. Quart.* 1998; **15**: 355–77.
- Sallis J, Owen N. Ecologic models. In: Glanz K, Lewis FM, Rimer BK, eds. *Health Behavior and Health Education: Theory, Research and Practice*, 2nd ed. San Francisco, CA: Jossey-Bass, 1997; 403–24.
- Finnegan J, Viswanath K. Mass media and health promotion: lessons learned, with implications for public health campaigns. In: *Health Promotion at the Community Level 2: New Advances*. Newbury Park, CA: Sage, 1999; 119–34.
- Pate R, Pratt M, Blair SN, Haskell W, Macera CA, Bouchard C, Buchner D, Ettinger W, Heath G, King AC, Kriska A, Leon AS, Marcus BH, Morris J, Paffenbarger RS, Patrick K, Pollock MI, Rippe JM, Sallis J, Wilmore JH. Physical activity and public health: a recommendation from the Centers for Disease Control and Prevention and the American College of Sports Medicine. *JAMA* 1995; **273**(5): 402–7.
- Blair S, Booth M, Gyrfas I. Development of public policy and physical activity initiatives internationally. *Sports Med.* 1996; **321**: 157–63.
- Andrade DR, Matsudo SMM, Matsudo VKR, Figueira A Jr, Araújo T, Andrade E, Oliveira L. Barriers to exercise adherence among activity young adults. *Med. Sci. Sports Exerc.* 1998; **30**(5): S182.
- Oliveira LC, Andrade DR, Figueira A Jr, Araújo T, Matsudo VKR, Matsudo SMM, Andrade E. Physical activity barrier as related to behavior stage in white collar workers. *Med. Sci. Sports Exerc.* 1998; **30**(5): S121.
- Maresman S, Matsudo VKR, Nieves C, Araújo TL, Matsudo SMM, Andrade DR, Andrade EL, Oliveira LC. *Coaliciones Multisectoriales en Salud – La Experiencia de Agita São Paulo*. Washington, DC: Pan American Health Organization, 2001 [in press].
- Governo do Estado de São Paulo, Secretaria de Estado da

- Saúde. *Programa Agita São Paulo. Manual de Orientação*. São Paulo: Governo do Estado de São Paulo, 1998.
- 31 Governo do Estado de São Paulo, Secretaria de Estado da Saúde. Programa Agita São Paulo: the São Paulo manifesto promoting physical activity in the Americas. *ICSSPE Bull.* 2000; **28**: 37.
 - 32 Matsudo V, Matsudo S, Araújo T, Andrade DR, Andrade EL, Oliveira LC, Figueira AJ Jr, Bracco MM, Braggion G. Agitando o médico e os agentes de saúde/Agita São Paulo: proposta de intervenção em grupos de profissionais de saúde. In: *Anais do XXII Simpósio Internacional de Ciências do Esporte, São Paulo, Brasil*. São Paulo, Brazil: CELAFISCS, 1999; 162.
 - 33 Gonçalves LG, Figueira A Jr, Oliva M, Matsudo VKR. Atividade física espontânea relacionada com o nível sócio – econômico. In: *Anais do XVIII Simpósio Internacional de Ciências do Esporte, São Paulo, Brasil*. São Paulo, Brazil: CELAFISCS, 1992; S22.
 - 34 Paschoal V, Andrade D, Matsudo S, Matsudo VKR. Nutrition knowledge and physical activities habits in Ilhabela (Brazil) and the United States. In: *Proceedings of The International Pre-Olympic Scientific Congress, Dallas, TX: Dallas, EUA: COI, 1996; S1047*.
 - 35 Matsudo SMM, Matsudo VKR, Andrade DR, Rocha JR. Physical fitness and time spent watching T.V. in children from low socioeconomic region. *Med. Sci. Sports Exerc.* 1997; **29**(5): S237.
 - 36 Hardman K, Marshall J. World-wide survey on the state and status of physical education in schools. In: *Proceedings of the World Summit on Physical Education*. Berlin: ICSSPE, 2001; 15–36.
 - 37 Andrade DR, Matsudo SMM, Matsudo VK, Araújo T, Andrade EL, Rocha A, Andrade RE, Rocha J. Physical activity patterns in girls and boys from low socioeconomic region physical activity level in adolescents. Paper presented at XIXth International Seminar on Pediatric Work Physiology, England, September 1997.
 - 38 Figueira A Jr, Oliveira LC, Araújo TL, Matsudo SMM, Andrade DR, Andrade EL, Matsudo VKR. Impacto do programa de promoção de atividade física na mídia não paga: experiência do programa Agita São Paulo. *Revista Brasileira de Atividade Física e Saúde* 2000; **5**(2): 38–47.
 - 39 Bracco M, Araújo T, Matsudo VKR, Matsudo S, Andrade D, Andrade E, Figueira A Jr, Oliveira LC, Braggion G, Rocha N. Atividade física: quanto e como fazer para a prevenção e controle do diabetes mellitus tipo 2. *Revista Diabetes Clínica* 2000; **4**(5): 368–70.
 - 40 Costa HD, Matsudo VKR, Matsudo SMM, Andrade EL. Effect of walking program on physical fitness and glycemic control in patients with diabetes type II (NIDDM). *Med. Sci. Sports Exerc.* 1998; **30**(5): S361.
 - 41 Pereira MHN. Mudança na adiposidade de mulheres adultas após um programa de exercícios enriquecidos das técnicas de modificação do comportamento. *Revista Brasileira de Ciência e Movimento* 1990; **4**(4): 18–27.
 - 42 Teodosio JP, Araújo TL, Figueira A Jr, Raso V, Matsudo VKR. Tendência secular da adiposidade de escolares residentes em região de baixo nível sócio-econômico. In: *Proceedings of XXIII Simpósio Internacional de Ciências do Esporte, São Paulo, Brasil*. São Paulo, Brazil: CELAFISCS, 2000; 149.
 - 43 Marques AC, Araújo TL, Figueira A Jr, Raso V, Matsudo VKR. Tendência secular das variáveis de aptidão física relacionadas à saúde em adolescentes de uma região de baixo nível sócio-econômico. In: *Proceedings of XXIII Simpósio Internacional de Ciências do Esporte, São Paulo, Brasil*. São Paulo, Brazil: CELAFISCS, 2000; 125.
 - 44 Ferreira M, Matsudo S, Andrade E, Braggion G, Matsudo V. Relação entre a adequação alimentar e variáveis antropométricas de mulheres de 55 a 75 anos fisicamente ativas. In: *Proceedings of XXIII Simpósio Internacional de Ciências do Esporte, São Paulo, Brasil*. São Paulo, Brazil: CELAFISCS, 2000; 99.
 - 45 Braggion GF, Matsudo SMM, Matsudo VKR. Consumo alimentar, atividade física e percepção da aparência corporal em adolescentes. *Revista Brasileira de Ciência e Movimento* 2000; **8**(1): 15–21.
 - 46 Braggion GF, Matsudo SMM, Matsudo VKR, Andrade EL. Energy intake, anthropometric variables and body image in active elderly women as related to age. *Med. Sci. Sports Exerc.* 2000; **32**(5): S219.
 - 47 Andrade EL, Matsudo VKR, Matsudo SMM, Andrade DR, Araújo TL, Oliveira LC, Braggion GF, Raso V. Level of physical activity in adults, including and excluding walking, according to the knowledge of Agita São Paulo Program. *Med. Sci. Sports Exerc.* 2001; **33**(5): S179.
 - 48 Matsudo V, Matsudo S, Araújo T, Andrade DR, Andrade EL, Oliveira LC, Figueira AJ Jr, Braggion G. Moderate, vigorous, and walking messages adopting in a physical activity intervention program, as related to chronological age. *Med. Sci. Sports Exerc.* 2001; **33**(5): S1192.
 - 49 Matsudo VKR, Andrade DR, Matsudo SMM, Araújo T, Andrade E, Figueira A Jr, Oliveira LC. Impact of a community–school intervention program on physical activity behavior of male and female adolescents. *Med. Sci. Sports Exerc.* 1999; **31**(5): S1327.
 - 50 Andrade D, Matsudo S, Matsudo V, Araújo T, Andrade E, Figueira A Jr, Oliveira L, Braggion GF. Changes in physical activity knowledge level as related to health promotion among students after one year intervention program. *Med. Sci. Sports Exerc.* 2000; **32**(5): S94.