

FITNESS INDUSTRY SURVEY RESULTS AND RECOMMENDATIONS

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Appendix B

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FITNESS INJURY SURVEY RESULTS AND RECOMMENDATIONS

Part of the mandate of the Ontario Sports Medicine and Safety Advisory Board is to make recommendations to reduce the incidence of injuries in the fitness industry. Because little information was available on this topic, a member of the OSMSAB worked with John Griffin of George Brown College (who was planning a smaller, related project) to conduct a survey of fitness injuries in Ontario.

OBJECTIVES

1. To gather information concerning the nature, incidence, and mitigating factors of injuries occurring in the fitness industry;
2. To develop, based on the above information and in collaboration with members of the fitness industry, recommendations aimed at reducing fitness-related injuries.

The project was funded by a WINTARIO research grant. In November, 1985 a survey questionnaire was sent to 735 fitness leaders (individuals who lead exercise classes), 855 fitness appraisers (individuals who conduct fitness tests) and 227 fitness-facility administrators. A total of 670 of those individuals (37 per cent) responded to the survey. (A summary of the salient results and recommendations for reducing the number of injuries can be found in Annex 1.)

In addition, transcripts from Coroners' Inquests into fitness-related deaths were reviewed; the recommendations from the Inquests were combined with those from the fitness survey respondents.

In November, 1986 the draft recommendations (Annex 11) and a preface that explained their source formed the basis of a feedback questionnaire that was circulated, for further comment, to 800 of the original survey recipients. Although the response rate was only 16 percent (128), there was extensive feedback from the respondents that was utilized to make important changes to the final recommendations.

Generally speaking, there was overwhelming support for the majority of the draft recommendations, although many minor modifications were suggested and some additions were made. Objections were raised to only a few of the recommendations and advice was offered on revising them.

All responses were reviewed by a committee of fitness experts and the recommendations were revised accordingly. Those were then sent to all 128 respondents in February, 1987 with a request for additional feedback. Only one further response was received, containing suggestions for minor changes that were incorporated into the final recommendations, which were then submitted to the OSMSAB for approval.

SIGNIFICANT FACTS FROM THE SURVEY AND CORONERS' INQUESTS THAT LED TO THE RECOMMENDATIONS

1. Most (but not all) current exercise leaders have taken some type of leadership training (generally conforming to accepted guidelines); but other than recognizing attendance at a course, there is no certificate of competency to enable the public to identify qualified leaders.
2. Most fitness appraisers are Registered or Certified by the Canadian Association of Sport Sciences, having

successfully completed nationally standardized training and apprenticeships.

3. Not all exercise leaders or appraisers are qualified in CPR, and fewer have first-aid training.

4. Not all exercise leaders and appraisers screen clients for:

- a) contra-indications to exercise;
- b) pertinent supplementary medical information (e.g., back problems); and
- c) current use of medication.

5. The most common injuries sustained during fitness classes, fitness appraisals and exercise programs are related to:

- a) overuse and impact shock (the shock of landing during aerobic exercises);
- b) improper progression;
- c) improper warm-up;
- d) type of flooring in the fitness facility (carpet or linoleum over concrete);
- e) improperly selected footwear;
- f) incorrect performance of exercises, as the result of inadequate instruction and supervision;
- g) improper screening of applicants to identify those with conditions for which fitness regimens are contra-indicated;
- h) setting exercise levels beyond the capability of the individual client.

6. Only two-thirds of the administrators of fitness facilities service their equipment on a regular basis. Moreover, this group cites lack of floor resilience as a major factor in injuries.

7. The Coroner's Inquest into the death, by drowning, of C.S. Shepherd in a health club on January 27, 1986, recommended that:

- a) regulatory responsibility for the fitness industry should be delegated by legislation to a ministry of government;
- b) screening of clients should include use of the Physical Activity Readiness Questionnaire (PAR-Q) along with supplemental medical information; and
- c) regulations should be developed for operating pools and saunas and for supervising clients in health clubs.

8. The Coronees Inquest into the death, due to cardiac arrhythmia, of J. Christie in a weight-loss clinic on June 5, 1984, recommended that:

- a) doctors should not prescribe appetite suppressants to help patients lose weight;

b) clients who embark on diets of fewer than 1,200 calories per day should have physical examinations;

c) there should be ongoing communication between a client's physician and the weight loss clinic.

9. The Coroner's Inquest into the death, due to coronary artery insufficiency following exercise, of J.D. Fryatt on July 8, 1976, recommended that clients of health clubs should not be given a false sense of security because tests are conducted on sophisticated equipment.

FINAL RECOMMENDATIONS

A. All exercise/fitness leaders and appraisers should be qualified, according to national standards that include emergency-care and First Aid training. To assist consumers, there should be a formal evaluation of competency. There should be several ways to attain qualification, depending on academic background, formal training and experience. A condition of maintaining such recognition should be compliance with professional standards and documented ongoing professional development.

B. Whenever feasible, all clients of fitness programs should be screened for contra-indications to exercise (by physician or PAR-Q), and all those deemed to be high risks should be referred, prior to exercise or testing, for medical clearance (e.g., PAR-Q). PAR-X stands for Physical Activity Readiness Exercise: information provided after a medical exam detailing appropriate exercise guidelines. The screening procedure should be accompanied by appropriate client education.

C. All clients of fitness programs should be questioned for pertinent supplementary medical information (e.g., back problems) and use of medication. Such information must be given due consideration in the design of any fitness program.

D. Informed-consent documents, which include information about the above, should be completed by all clients prior to beginning an exercise or fitness program, in order to ensure they are fully informed about the nature of the exercise and the risks involved.

E. Fitness leaders and appraisers should avoid giving clients a false sense of security, either by using sophisticated equipment or by creating the impression they are "experts" in such allied areas as nutrition, weight control, sport medicine, etc.

F. Continuing professional development should be made available to exercise/fitness leaders and appraisers. This recommendation means creating a new, or involving an existing, association; one requirement for maintaining membership in such a group should be documented participation in ongoing professional development.

G. Standards should be developed for operating fitness facilities (including pools and saunas) supervision, emergency and reporting procedures, flooring, servicing equipment, etc. Procedures for investigation and related sanctions for those who do not comply should also be established.

H. Educating exercise/fitness leaders and appraisers should include giving them information on:

a) how to warm-up, exercise and cool-down properly

b) controversial exercises

c) appropriate progression

d) how to design a program

e) how to communicate with clients

f) appropriate weight-loss guidelines

I. Exercise/fitness leaders and appraisers should be sensitive to the injury-related concerns of their clients. They should be aware that:

1. Appropriate levels of warm-up, intensity, progression and cool-down should be designed in keeping with the varying needs of different participants.

2. When feasible, concrete and other non-resilient floors should be avoided; if the type of flooring is beyond the control of a leader, exercise programs should be modified accordingly.

3. Exercise leaders must recognize the pros and cons of impact versus low-impact exercise and must use them according to needs of the individual client.

4. Appropriate supervision and monitoring of exercise sessions should be provided.

5. In fitness appraisals, if sit-ups (curl-ups) and push-ups are used, they should be included only after taking into account the individual's condition.

6. Clients should receive careful instructions and demonstration of proper exercise techniques, as well as information on such potential safety hazards as inappropriate footwear and floors.

7. Clients should be informed about symptoms of trauma resulting from acute injuries and about treatment of them (e.g., use of RICE - Rest, Ice, Compression and Elevation. However, fitness appraisers and leaders must be fully aware of their own limitations and make appropriate referrals.

J. In order to ensure that the provincial government has appropriate responsibility for the fitness industry and can take action if professional standards or guidelines and self-regulation are ineffective, legislation is needed to give the Ministry of Tourism and Recreation regulatory responsibility for the fitness industry.

K. The provincial government has a responsibility to help educate consumers so that they are aware of how to choose a proper leader, appraiser and fitness facility.

APPENDIX I: SUMMARY OF THE FITNESS INJURY SURVEY RESULTS

Fitness/Exercise Leaders

(257 respondents out of 735 polled; 35 per cent)

Salient Findings

1. Most leaders have undergone some type of exercise leadership training, but no form of certification or recognition exists to identify qualified leaders.

2. 87.7 per cent of leaders have CPR training and 75 per cent have first-aid training.
3. 40 per cent of floor surfaces are thinly covered concrete.
4. Only 40 per cent of leaders wear proper aerobic shoes.
5. 72.8 per cent of leaders screened participants via the PAR-Q.
6. 54.1 per cent of leaders ascertained whether clients were taking medication.
7. 61.1 per cent of leaders incurred or aggravated an injury to themselves as a result of leading classes.
8. Most common injury areas were: shin (27 per cent); knee (14 per cent); ankle (11 per cent); lower back (11 per cent).
9. When they were injured, 20 per cent of people did not seek medical care; 22 per cent consulted a sports medicine clinic; another 22 per cent consulted the family physician and 11.5 per cent consulted a chiropractor, most often for back problems.
10. Most common forms of treatment were: reduced activity (36 per cent); R.I.C.E. (19 per cent); physical therapy (15 per cent).
11. Of a total leader population of 1,000, 46 per cent were prevented, because of injuries, from conducting classes for an average of 2.2 weeks per year.
12. Injuries were attributed to: footwear, e.g., court shoes for aerobics (55 per cent); type of floor (46 per cent); overuse or inappropriate rate of progression (31 per cent); improper exercise execution (27 per cent).

PROPOSED RECOMMENDATIONS BY THE FITNESS/EXERCISE LEADERS FOR INCREASED SAFETY

- A.** Enhanced preparation and education of instructors' (proper exercise execution, program design, progression, communication skills).
- B.** Standardization of training and certification of instructors (all should have CPR and First Aid).
- C.** Proper precautions:
 1. All participants in exercise classes should be screened for contra-indications to exercise (PAR-Q) and use of medication.
 2. Participants should enter sessions at an appropriate intensity and progress at an appropriate rate.
 3. Type of flooring is important.
- D.** Consumers should be educated to select a good exercise class and leader.
- E.** Exercise leaders are exposed to excessive loads and impact shocks, which will lead to overuse injuries regardless of the person's physical condition; it is recommended that they wear proper shoes and engage in low-impact aerobics wherever appropriate.

Fitness Appraisers

(186 respondents out of 855 polled: 22%)

Salient Findings

1. 91 per cent were Registered or Certified appraisers.
2. 98.4 per cent had CPR and 83.9 per cent had First Aid.
3. 77.8 per cent screen clients via the PAR-Q, often with supplementary medical information.
4. 96.8 per cent ascertain whether clients are taking medication.
5. 93.5 per cent of appraisers reported that fewer than five per cent of their clients received injuries while being appraised; the most common injuries were to the: calf (24.5 per cent), lower back (18.4 percent) (often predisposed), shin (12 per cent, knee (12 per cent), shoulder (12 per cent).
6. 69 per cent of appraisers reported that 15 per cent or fewer of their clients sustained injuries from participating in an exercise program; the most common injuries were to the: lower back (23 per cent), shin (22 per cent), knee (19 per cent), ankle (9 per cent).
7. The most common reasons for injuries were: too-rapid progression on weights or use of improper technique; inadequate instruction or supervision; poor footwear.
8. Most injuries sustained during an appraisal were to the calf and lower back, indicating that test protocols and warm-up may be a problem.
9. Inadequate instruction, poorly supervised workouts and over training are factors most often related to injuries sustained in exercise programs.
10. Back problems that occur in testing or exercise programs are often related to previous problems and indicate that careful screening is necessary.

RECOMMENDATION OF FITNESS APPRAISERS

- A.** Screening procedures should be standardized (e.g., mandatory PAR-Q, medication questionnaires) and high-risk individuals should be referred for medical clearance.
- B.** Use of sit-ups and push-ups in fitness appraisals should be re-evaluated; the correct technique in these exercises is very important.
- C.** Enhanced education and preparation of appraisers and their continuing professional development are necessary if they are to deal with new types of equipment and controversial exercises, or if they are to improve their communication skills. All appraisers should have CPR and First Aid).
- D.** Consumers need to be educated in choosing the facility or instructor who is right for them and in learning how to exercise safely.
- E.** The decisions to prescribe exercise for clients must be carefully made and, once given, should be carefully supervised. Factors to be considered are: appropriate warm-up, progression, instruction and

demonstration of proper techniques.

Fitness/Exercise Administrators

(227 respondents self-selected by sending questionnaire to 200 clubs)

Salient Findings

1. 64.3 per cent of the facilities employed fitness appraisers, but only 26.9 per cent of the facilities had CASS accreditation.
2. Injuries in exercise classes were reported by 62.3 per cent of all administrators (shin 28.9 per cent, ankle 16.4 per cent, lower back 11.3 per cent, calf 11.3 per cent, and knee 10.2 per cent).
3. Injuries sustained while clients were using equipment were reported by 70 per cent of the administrators (lower back 22.7 per cent, knee 17.0 per cent, ankle 15.5 per cent, and shoulder 10.3 per cent).
4. The following factors were offered as reasons for the occurrence of injury: type of floor (38.5 per cent), age of participant (24.2 per cent), poorly supervised workout (20.5 per cent), and employee training/experience (15.5 per cent).
5. Concerns with the design of exercise facilities were related almost entirely to the lack of floor resilience.
6. Lack of client screening, improper progression, inadequate instructions and over-crowding were also cited as causative factors.

IMPLICATIONS/RECOMMENDATIONS FROM THE FITNESS ADMINISTRATORS' RESPONSES

- A. The prevention of injuries plays a role in the renewal of club memberships.
- B. The high incidence of lower back injuries incurred while using equipment should be addressed through improvements in exercise design, client screening, careful demonstrations, and watchful supervision.
- C. Most fitness administrators support a strong certification program for fitness leaders and appraiser.

APPENDIX II: DRAFT RECOMMENDATIONS

- A. All exercise/fitness leaders and appraisers should have appropriate qualifications (conforming to national guidelines and including emergency-care and First Aid training), and information that a leader or appraiser has completed such training should be available to consumers by way of a form of visible recognition. A condition of qualification should be willingness to comply with the following guidelines:
 1. Screening of all clients for contra-indications to exercise (minimum PAR-Q) and referral of high-risk individuals for medical clearance PAR-X).
 2. Questioning of all clients for pertinent supplementary medical information (e.g., back problems) and use of medications, and due consideration of such information in setting any exercise regimen.

3. Requiring clients to complete appropriate informed-consent documents before beginning an exercise program or fitness appraisal, to ensure that participants are fully informed of the nature of the exercise and of the risks involved.

B. Fitness facilities should be required to conform to regulations covering their equipment and operations, including pools, saunas, equipment maintenance and emergency procedures.

C. The instruction of exercise/fitness leaders and appraisers should include complete information on:

1. proper warm-up and exercise execution;
2. controversial exercises;
3. appropriate progression;
4. program design;
5. communication skills;
6. appropriate weight loss guidelines;
7. the need to avoid giving clients a false sense of security caused by the use of sophisticated equipment.

D. Continuing professional development should be available to exercise/fitness leaders and appraisers; implementation of this recommendation will probably require establishing a professional association of fitness leaders and appraisers.

E. Exercise/fitness leaders and appraisers should be sensitive to the following injury-related concerns:

1. the need for appropriate (client-specific) warm-up exercises, intensity and progression;
2. the need to apprise clients of the importance of appropriate footwear, and the need to avoid (non-resilient) concrete floors;
3. the importance of minimizing use of "impact" exercise;
4. the need to give clients careful instruction and to demonstrate proper exercise techniques;
5. the need to carefully supervise exercise sessions;
6. the importance of giving clients information about symptoms of injuries from over-exercise and how to treat acute injuries (e.g., RICE);
7. the need to re-evaluate sit-ups and push-ups in fitness appraisals;
8. the importance of servicing equipment in fitness facilities on a regular basis.

F. The Government of Ontario should take ministerial (regulatory) responsibility for the fitness industry.

G. The Government of Ontario should pass legislation covering the qualifications and conduct of exercise/fitness leaders and appraisers,

H. The Government of Ontario should pass legislation regulating the operation of fitness clubs and covering pools, saunas, supervision, emergency procedures, standards for flooring and equipment maintenance.

I. The Government of Ontario should mount a public education program to ensure that consumers are aware of how to choose a proper facility and leader or appraiser.



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