



Epi Data Brief

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Muscle-strengthening Activity among New Yorkers

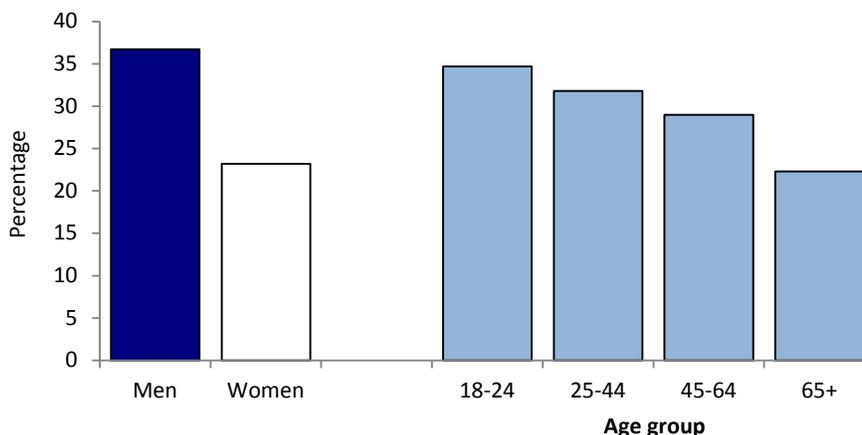
Muscle-strengthening activity has many benefits and supports general physical activity

Muscle-strengthening activity (MSA) increases lean body mass,¹ increases resting metabolic rate,² and promotes physical activity in general.³ Adults who engage in strength training are less likely to experience loss of muscle mass, functional decline,³ and fall-related injuries than adults who do not strength train.⁴ Increasing MSA -- such as push-ups, sit-ups, or lifting weights -- is a national physical activity priority.⁵ The *2008 Physical Activity Guidelines for Americans* (2008 PAGA) recommends that adults engage in MSA twice a week and adolescents three times a week.⁶

In 2011, 30% of adults and 50% of youth in New York City met recommendations for muscle-strengthening

- In New York City (NYC), 30% of adults did muscle-strengthening activity (MSA) at least twice in the past week (the recommended frequency for adults); this level is similar to the US generally (29%).⁷
 - Men in NYC were more likely than women to engage in MSA at least twice a week (38% vs. 23%).
 - Despite the health benefits for older adults in particular, the prevalence of MSA among New Yorkers declined significantly with age. Almost a third (31%) of New Yorkers under age 65 reported doing MSA at least twice in the past week versus 21% of those 65 or older.
- In 2011, half (50%) of NYC public high school students did MSA three or more times in the past week, lower than national levels (56%).⁸ As with adults, this prevalence was greater among male than female youth in NYC (58% vs. 42%).

Meeting muscle-strengthening guidelines, by gender and age, New York City adults, 2011



Source: NYC Physical Activity and Transit Survey, 2011

Data Sources

The New York City Physical Activity and Transit Survey (PAT) 2011 was a telephone survey conducted by the Health Department to better understand patterns of physical activity and other factors that facilitate a healthy lifestyle. Data presented in this Brief are from 2,488 adults aged 18 and older who completed wave two of the survey; data are age adjusted to the US 2000 Standard population, except for age-specific estimates. PAT was supported by funding from the US Department of Health and Human Services.

New York City Youth Risk Behavior Survey (NYC YRBS) 2011:

Data on NYC students in grades 9 through 12 (also referred to here as "youth") are from the 2011 NYC YRBS, a self-administered, anonymous survey conducted in NYC public high schools by the Health Department and the NYC Department of Education. For more survey details, visit <http://www.nyc.gov/html/doh/html/data/youth-risk-behavior.shtml>.

National Youth Risk Behavior Surveillance System (YRBSS) 2011:

National comparison data for youth are from the 2011 YRBSS, a self-administered, anonymous survey conducted in public and private high schools in the United States by the Centers for Disease Control and Prevention. For more information, visit <http://www.cdc.gov/healthyyouth/yrbss/index.htm2011>.

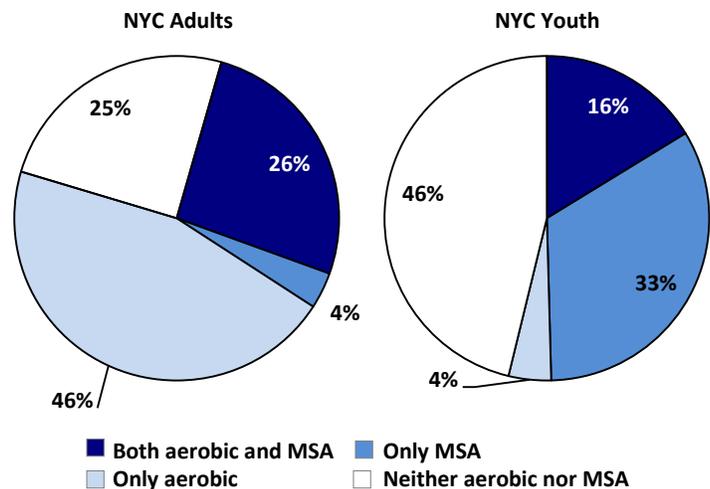
Note: Estimates of both muscle-strengthening and aerobic activity are from self-report. A recent [Epi Data Brief](#) provides data on overall physical activity among NYC adults as measured objectively using accelerometers.

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Meeting both aerobic and muscle strengthening activity guidelines

- Leisure-time aerobic activity (those which cause an increase in breathing or heart rate, such as jogging) and strengthening activity go together: those who did one were more likely to do the other.
 - Adult New Yorkers who met 2008 PAGA guidelines for aerobic activity (150 minutes of moderate-intensity leisure time physical activity in the past week⁶) were more likely to do MSA at least twice a week than those who did not (36% vs. 13%).
 - NYC youth who met 2008 PAGA guidelines for aerobic activity (being active for at least 60 minutes every day⁶) were more likely to do MSA at the recommended level versus those who did not meet aerobic activity guidelines (79% vs. 42%).
- 72% of NYC adults met aerobic activity guidelines, but only 26% met both aerobic *and* MSA guidelines, although this level is higher than among US adults overall (21%).⁷
 - New Yorkers age 65 or older were less likely to meet the combined activity guidelines than those under 65 (17% vs. 28%).
 - Similar to national patterns,⁷ combined activity levels declined with education: 34% of college graduates met both aerobic and MSA guidelines compared with 13% of those with less than a high school diploma.
- Only 20% of NYC youth met aerobic activity guidelines, and just 16% met both aerobic *and* MSA guidelines, lower than the national level (25%).⁸
 - The prevalence of meeting both guidelines declined by grade (18% of those in ninth grade vs. 12% in 12th grade).
- As with MSA alone, male adults and youth were more likely to meet the combined activity recommendations than female adults and youth (males: 33% of adults, 23% of youth; females: 20% of adults, 10% of youth).

Percent of New York City adults and youth meeting both muscle-strengthening (MSA) and aerobic activity guidelines, 2011



Source: NYC Physical Activity and Transit Survey, 2011

Key Guidelines for physical activity, 2008 Physical Activity Guidelines for Americans

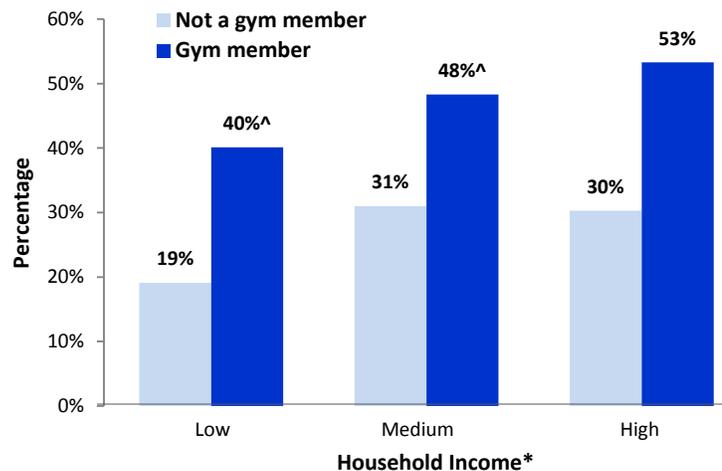
Children and adolescents: 60 minutes or more of physical activity daily, most of which should be either moderate- or vigorous-intensity aerobic physical activity, and include vigorous activity at least three days a week. Children and adolescents should include muscle-strengthening physical activity at least three days per week and bone-strengthening physical activity at least three days per week.

Adults: 150 minutes per week or more of moderate-intensity, or 75 minutes per week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity activity. Aerobic activity should be performed in episodes of at least 10 minutes. For additional health benefits, adults should increase aerobic physical activity to 300 minutes per week of moderate intensity, or 150 minutes per week of vigorous intensity aerobic physical activity, or an equivalent combination. Adults should also do muscle-strengthening activities of moderate or high intensity involving all major muscle groups on two or more days per week, as these activities provide additional health benefits.

What supports muscle-strengthening activity?

- Having a gym membership was associated with strength training among adults. Nearly half (48%) of those with a gym membership in the past year did MSA at least twice in the past week, compared with less than a quarter (22%) of those who did not.
 - Regardless of household income, gym members were more likely than non-gym members to do MSA. However, adults in high income households were more likely to have a gym membership than adults in low income households (49% vs. 19%).*
- Being active with others may also help.
 - 61% of youth who were on a sports team also did MSA three times or more in the past week versus 41% of those who were not.
 - Physical education ("PE") classes also support MSA: youth with daily PE classes were more likely to do MSA three or more times a week than those who either did not have a PE class or had PE less than once a week (62% vs. 41%).
 - Among adults whose friends exercise, play sports, or do other physical activities, 37% met MSA guidelines versus 17% of those whose friends did not.

Meeting muscle-strengthening activity guidelines by household income and gym membership, New York City adults, 2011



*Household income: low=<200% of federal poverty level (FPL), medium=200-399% FPL and high= ≥400% FPL

^Estimate should be interpreted with caution. The relative standard error (a measure of estimate precision) is greater than 30, making the estimate potentially unreliable.

Source: NYC Physical Activity and Transit Survey, 2011

*High-income households were defined as those with total household income that was at least 400% of the federal poverty level, while low-income households are those with a total household income that was less than 200% of the federal poverty level.

References

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2. Pratley R, Nicklas B, Rubin M, et al. Strength training increases resting metabolic rate and norepinephrine levels in healthy 50- to 65-yr-old men. *J. Appl. Physiol*. 1994;76(1):133-137.
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5. Health People 2020. US Health and Human Services Summary of Objectives: Physical Activity, Objectives PA-2.3, PA-3.2, and PA-3.3 are to increase both aerobic activity and MSA among adults and youth. <http://www.healthypeople.gov/2020/topicsobjectives2020/pdfs/PhysicalActivity.pdf>. Accessed August 27, 2013.
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7. Centers for Disease Control and Prevention. Adult Participation in Aerobic and Muscle-Strengthening Physical Activities -- United States, 2011. *MMWR*. 2013;62(17):326-330.
8. Centers for Disease Control and Prevention. Youth Risk Behavior Surveillance -- United States, 2011. *MMWR*. 2012;61(No. SS 4):1-162. <http://www.cdc.gov/mmwr/pdf/ss/ss6104.pdf>. Accessed August 27, 2013.

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- For complete tables of data presented in this Brief, visit www.nyc.gov/html/doh/downloads/pdf/epi/datatable39.pdf
- Visit EpiQuery – the Health Department’s online, interactive health data system at www.nyc.gov/health/EpiQuery.