

Author, Year, Country	Study Goal	Exercise Protocol Exercise Type	Number and Sex of Subjects	Key Findings
Peters, 1983, South Africa ³¹	Prospective study of the incidence of symptoms of URTI in 150 randomly selected runners taking part in the 1982 Two Oceans Marathon in Cape Town, South Africa, and compared incidence in individually matched controls who did not run	<ul style="list-style-type: none"> Participants reported 2-week recall of illness symptoms after 56 km race Ultramarathon 	41 ultramarathon runners and 124 controls (18–65 years; no sex reported)	Illness incidence was two times higher in runners (after race) versus controls
Nieman, 1993, USA ³⁶	Epidemiologic study of Los Angeles Marathon applicants to investigate the relationship between self-reported infectious episodes and training	<ul style="list-style-type: none"> Participants were asked to report illness symptoms 2 months before and 1 week after March 42.2 km race Marathon 	2,311 marathon runners (aged 36.9±0.2 years; 1,941 males; 370 females)	Runners experienced increased odds for infectious episodes during heavy training or following a marathon race
Raysmith, 2016, multiple countries ³²	Retrospective cohort to investigate the impact of training modification on achieving performance goals and illness	<ul style="list-style-type: none"> Participants reported illness symptoms during 6 months across five international competition seasons Track and field 	33 international track and field athletes (no sex reported)	Illness incidence was 23%; half of illnesses occurred 2 months before competition
Heath, 1991, USA ³⁷	Prospective cohort study to investigate illness patterns in a cohort of 530 male and female runners who completed a monthly log for 12 months	<ul style="list-style-type: none"> Participants reported training log and illness symptoms every month for 1 year Running 	530 runners (mean age: 39.4 years; 447 males; 83 females)	Participants running >485 miles/year (780 km/year) displayed an increased risk of illness. The average number of events per person per year was 1.2, and slightly higher in females than males (1.2 for males versus 1.3 for females)
König, 2000, Germany ³³	Epidemiological study to investigate the association between incidence of illness and exercise, stress, and sleep deprivation	<ul style="list-style-type: none"> Participants retrospectively reported illness episodes over the past 12 months Athletics 	852 German athletes (aged 23.6±9.5 years; no sex reported)	Illness incidence was two times higher in participants conducting endurance sports
Alonso, 2012, Korea ³⁸	Epidemiological study to investigate the incidence and characteristics of newly incurred injuries and illnesses in the 13 th International Association of Athletics Federations World Championships in Athletics 2011 in Daegu, South Korea	<ul style="list-style-type: none"> Medical staff reported illness symptoms during competition event (<4 weeks) Athletics 	1,851 registered athletes (1,063 males; 964 females)	No differences in illness and time-loss illness incidence were reported between male and female athletes
Timpka, 2017, China ³⁹	Cohort study to investigate pre-participation predictors of injury and illness during the 15 th International Association of Athletics Federations World Athletics Championships in Beijing, China (22 nd –30 th August 2015)	<ul style="list-style-type: none"> Athletes answered pre-participation health questionnaire including individual pre-participation information (personal characteristics and health status during the month preceding the championship) Athletics 	307 athletes (135 females; 172 males)	No sex difference found in athletes reporting an illness symptom
Alonso, 2010, Germany ⁴⁰	Epidemiological study to investigate the frequency and characteristics of sports injuries and illnesses incurred during the 12 th International Association of Athletics Federations World Championships in Athletics 2009 in Berlin, Germany	<ul style="list-style-type: none"> Medical staff reported illness symptoms during competition event (<4 weeks) Athletics 	2,378 athletes (1,301 males; 1,077 females)	A total of 382 injury and illness report forms were returned. More illnesses were reported for female than for male athletes
Gleeson, 2013, UK ⁴¹	Prospective cohort to investigate the effect of training load on URTI incidence in males and females engaged in endurance-based physical activity during the winter	<ul style="list-style-type: none"> Participants followed for 4 months in winter; reported weekly illness symptoms and training. Exercised 3–6 hours/week (low), 7–10 hours/week (medium) or ≥11 hours/week (high) Endurance training 	75 endurance trained university students (aged 18–35 years; no sex reported)	The high and medium intensity groups reported higher rates of URTI episodes than the low intensity group
Rama, 2013, Portugal ³⁴	Prospective cohort study to investigate the occurrence of episodes of URS over a winter swimming season	<ul style="list-style-type: none"> Participants followed for 7 months in winter; reported daily illness symptoms Swimming 	19 elite swimmers versus 11 non-athlete controls (aged 17.6±1.0 years; no sex reported)	67% of URS episodes occurred during high volume training in swimmers versus no illness in control at same time points
Hellard, 2015, France ³⁵	Prospective cohort study to investigate the relationship between sport training and the risk of common illnesses: URTI and pulmonary infections, muscular affections, and all-type pathologies in highly trained swimmers	<ul style="list-style-type: none"> Participants followed for 4 years; monitored weekly for illness Swimming 	28 elite swimmers (aged 16–30 years; no sex reported)	Illness increased 1.08 times for every 10% increase in resistance training, and 1.10 times for every 10% increase in high-load training
Prien, 2017, Russia ⁵⁷	Comparative study to investigate the frequency and characteristics of injuries/illnesses in the 4 weeks prior to, and during, the FINA World Championships in 2015	<ul style="list-style-type: none"> Athletes answered a retrospective questionnaire, and medical staff reported injuries/illnesses prospectively Swimming 	2,413 athletes who competed at the FINA World Championships 2015 in one of the six aquatic disciplines (1,262 females; 1,151 males; aged 10–40 years; mean age: 22.1 years [SD: 4.5])	Around a quarter (26.1%) of athletes reported health complaints in the 4 weeks prior to the championships
Spence, 2007, Australia ⁵⁸	Prospective cohort to investigate the incidence, pathogenic etiology, and symptomatology of acute URTI during a 5-month training and competition period	<ul style="list-style-type: none"> Participants followed for 5 months in summer/autumn; reported daily illness symptoms Triathlon and cycling 	17 elite male and female triathletes and cyclists (aged 18–34 years), 30 male and female recreationally competitive triathletes and cyclists (aged 19–34 years), and 18 male and female untrained sedentary controls who walked <60 min/week (aged 19–29 years)	Elite athletes had higher rates of illness than recreationally competitive athletes and sedentary controls
Svendsen, 2015, multiple countries ⁵⁹	Prospective cohort study to investigate whether participating in a cross-country skiing stage race (Tour de Ski) affects subsequent illness incidence, training, and race performance	<ul style="list-style-type: none"> Participants followed for 8 years; reported illness symptoms daily for 10 days after the Tour de Ski race Cross-country skiing 	42 male and female elite cross-country skiers (aged 24±4 years)	Illness incidence was 3 times higher in skiers who raced the Tour de Ski versus non-competing skiers
Drew, 2018, Brazil ⁴⁶	Retrospective cohort to investigate the prevalence of illness symptoms, poor sleep quality, poor mental health symptoms, low energy availability, and stress-recovery state in an Olympic cohort in the 3 months prior to the Summer Olympic Games	<ul style="list-style-type: none"> 3 months before competition, participants reported illness symptoms during a 1-month period Summer Olympic sports 	132 elite athletes preparing for the Olympics (47 males, aged 25.8±4.1 years; 85 females, aged 24.3±3.9 years)	Illness symptoms were found in 100% athletes. Risk factors were female sex, low energy availability, and a combination of anxiety and stress-recovery states
Mountjoy, 2015, Spain ⁴⁷	Epidemiological study to investigate injuries among athletes of aquatic disciplines in the 4 weeks prior to and during the 2013 FINA World Championships	<ul style="list-style-type: none"> Medical staff reported illness symptoms during competition event (<4 weeks) Water sports 	1,110 athletes (500 males; 610 females; mean age: 22.5 [SD: 4.35])	Significantly more females than males reported physical complaint prior to the Championships
Mountjoy, 2010, Italy ⁴⁸	Epidemiological study to investigate the frequency and characteristics of injuries and illnesses occurring during the 13 th FINA World Championships 2009	<ul style="list-style-type: none"> Medical staff reported illness symptoms during competition event (<4 weeks) Water sports 	2,592 athletes (1,293 females; 1,299 males)	Female athletes had a higher risk of injury than male athletes
Engebretsen, 2010, Canada ⁴⁹	Epidemiological study to investigate the frequencies and characteristics of injuries and illnesses during the XXI Winter Olympic Games in Vancouver, Canada, in 2010	<ul style="list-style-type: none"> Medical staff reported illness symptoms during the competition event (<4 weeks) Winter Olympic sports 	2,567 athletes (1,045 females; 1,522 males)	There was a significantly higher proportion of illness in female athletes compared to male athletes
Soligard, 2015, Russia ⁴²	Epidemiological study to investigate injuries and illnesses that occurred during the XXII Olympic Winter Games, held in Sochi, Russia, in 2014	<ul style="list-style-type: none"> Medical staff reported illness symptoms during competition event (<4 weeks) Winter Olympic sports 	2,780 athletes (1,121 females; 1,659 males)	Female athletes were at significantly higher risk of contracting an illness than male athletes
Palmer-Green, 2015, Russia ⁴³	Observational prospective cohort study to investigate the prevalence, severity, nature, and causes of athlete injuries and illnesses in the Great Britain Olympic Team during the Sochi, Russia, 2014 Winter Olympic Games	<ul style="list-style-type: none"> Medical staff reported illness symptoms during competition event (<4 weeks) Winter Olympic sports 	56 athletes (33 males; 23 females), members of the Great Britain Olympic Team (13 sports represented)	There were more illnesses sustained by female athletes compared to male athletes
Engebretsen, 2013, UK ⁴⁴	Epidemiological study to investigate injuries and illnesses that occurred during the Games of the XXX Olympiad, held in London, UK, in 2012	<ul style="list-style-type: none"> Medical staff reported illness symptoms during the competition event (<4 weeks) Summer Olympic sports 	10,568 athletes (4,676 females; 5,892 males)	Overall, female athletes suffered higher rates of illnesses than males
Soligard, 2017, Brazil ⁴⁵	Epidemiological study to investigate the recorded daily incidence of athlete injuries and illnesses through the reporting of all National Olympic Committee medical teams, and in the polyclinic and medical venues in Rio de Janeiro, Brazil, 2016	<ul style="list-style-type: none"> Medical staff reported illness symptoms during competition event (<4 weeks) Summer Olympic sports 	11,274 athletes (5,089 females; 6,185 males) participating in the Games of the XXXI Olympiad, hosted in Rio de Janeiro	Females were at significantly higher risk of contracting an illness than males