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Training guides

21 articles for practice — evidence-based, short and with the matching tool

The articles come from the guides of sport-trainer.eu. Each ends with a key point and names the tool for putting the topic into practice and the references.

As of 2026-11-09 · Thomas Schüller

Contents

1. Strength training for young people · Children
2. Children learn to swim: water confidence first · Children
3. Daily physical activity in schools · Children
4. Reading success rates correctly · Measuring
5. Running field tests properly · Measuring
6. Video analysis: counting reliably · Measuring
7. Estimating training load with session RPE · Planning
8. Health questions before starting to train · Planning
9. Periodisation without a rigid scheme · Planning
10. Comparing offers by your own motives · Planning
11. How much activity? The WHO guidelines · Planning
12. Climbing: partner check before every climb · Games and tactics
13. Rehearsing plays: from the board to the pitch · Games and tactics
14. Playful activity outdoors · Games and tactics
15. A warm-up that works · Session design
16. Eating and drinking around training · Session design
17. Training balance to prevent falls · Session design
18. Remote competition: one task, many places · Clubs
19. Radio at events without mobile coverage · Clubs
20. Finding a sports hall, pitch or pool · Clubs
21. Club training: managing load by group · Clubs

CHILDREN

Strength training for young people

Why supervised strength training is safe and useful for young people and what a good start with body weight looks like.

For a long time it was said that strength training harms children. Research shows the opposite: Faigenbaum and colleagues summarise that supervised, age-appropriate strength training improves strength, movement skill and bone health and can help prevent sports injuries. What matters is guidance and technique, not the weight.

How to start

Start with body-weight exercises: squat, push-up against a bench, lunge, forearm plank. Only when technique is secure add light extra loads. Two to three short sessions a week are enough.

Respect development

The consensus statement of the International Olympic Committee on youth athletic development recommends varied training and warns against early specialisation. Children of the same age differ markedly in maturity; load follows ability, not year of birth.

With the learning cards

The learning cards contain body-weight strength exercises and circuits with a learning path; the session builder turns them into sessions with the follow-along clock.

> **Key point:** Supervised strength training is safe and useful for young people; technique first, then load.

Tool: https://sport-trainer.at/werkzeuge/en/learning-cards.html

References

1. Faigenbaum, A. D. et al. (2016): Citius, Altius, Fortius: beneficial effects of resistance training for young athletes: narrative review. British Journal of Sports Medicine 50(1), 3-7.
2. Bergeron, M. F. et al. (2015): International Olympic Committee consensus statement on youth athletic development. British Journal of Sports Medicine 49(13), 843-851.

CHILDREN

Children learn to swim: water confidence first

Why breathing, diving and gliding come before the swimming stroke and which rules apply to supervision and group size.

Drowning is one of the leading causes of death in children worldwide, as the report of the World Health Organization shows. Learning to swim protects but never replaces supervision. Drowning is usually silent and quick; adults must be able to see and reach the child at all times.

The order

It starts with water confidence: face in the water, breathe out, open the eyes. Then follow diving, gliding on the front and on the back and only then propulsion with arms and legs. Practising stroke movements too early means fighting the water instead of working with it.

Supervision and group

Small groups, clear signals for start and end, a place at the pool edge from which all children are visible. Denny and colleagues recommend swimming lessons as part of a bundle of supervision, barriers and awareness of hazards.

With learning to move

The tool leads in stages from water confidence to safe swimming, with support and typical mistakes. For course leaders the academy offers the course on leading a swimming course.

> **Key point:** Breathing, diving and gliding first, then the stroke — and always supervision that sees and reaches every child.

Tool: https://sport-trainer.at/werkzeuge/en/learning-to-move.html

References

1. Weltgesundheitsorganisation (2014): Global report on drowning: preventing a leading killer. WHO, Genf.
2. Denny, S. A.; Quan, L.; Gilchrist, J. et al. (2019): Prevention of Drowning. Pediatrics 143(5), e20190850.

CHILDREN

Daily physical activity in schools

How schools implement Austria's daily physical activity programme with short, well-prepared sessions and where clubs can help.

According to the World Health Organization, children should be active for an hour every day. Austria's daily physical activity programme starts here: activity in PE lessons, in everyday school life and with sports clubs. It is being expanded, with sports federations working together with schools.

What the evaluation shows

The evaluation by Gesundheit Österreich shows that implementation depends on planning, space and cooperation between school and club. Short, recurring routines are easier to implement than large single lessons.

Short sessions

Ten to twenty minutes with a warm-up, a game or circuit and a calm finish can also be done in the classroom or the corridor. Clear rules on space and safety are important.

With the session builder and learning cards

Teachers put together sessions from warm-up, games and strengthening and run them with the follow-along clock; the learning cards provide games, children's gymnastics and exercises with a learning path.

> **Key point:** Short, recurring activity sessions with clear rules are the most reliable route to daily activity in school.

Tool: https://sport-trainer.at/werkzeuge/en/session-builder.html

References

1. Bundesministerium für Kunst, Kultur, öffentlichen Dienst und Sport; Bildungsministerium (2026): Tägliche Bewegungseinheit: Drei-Säulen-Modell, Ausbau 2026, Beteiligung von 13 Sportfachverbänden mit über 20.000 Bewegungseinheiten von Februar bis August 2026. bewegungseinheit.gv.at.
2. Gesundheit Österreich GmbH (2024): Evaluation der Täglichen Bewegungseinheit in Österreichs Schulen. goeg.at.
3. Bull, F. C. et al. (2020): World Health Organization 2020 guidelines on physical activity and sedentary behaviour. British Journal of Sports Medicine 54(24), 1451-1462.

MEASURING

Reading success rates correctly

Why five successful attempts out of ten say little, how the uncertainty range helps and how many attempts you need.

Five out of ten attempts succeeded, so 50 percent. At the next session it is seven out of ten. Has the team improved? Perhaps, perhaps not. With small numbers a rate varies strongly without anything having changed. Lames and McGarry show that many performance indicators in game sports vary markedly from match to match.

The uncertainty range

The Wilson interval gives the range in which the true rate lies with about 95 percent confidence. For five out of ten it runs from about 24 to 76 percent, for 50 out of 100 from about 40 to 60 percent. If the ranges of two measurements overlap strongly, a difference is not shown.

Clear rules before counting

Hughes and Franks stress that every observation needs a clear definition. Agree beforehand what counts as an attempt and what as a success, and count practice and matches separately.

How to use it

Collect attempts over several sessions before you judge. The tactics board always shows the rate with its range and marks values below ten attempts.

> **Key point:** A rate without an uncertainty range invites wrong conclusions; only many attempts make differences visible.

Tool: https://sport-trainer.at/werkzeuge/en/tactics-board.html

References

1. Wilson, E. B. (1927): Probable inference, the law of succession, and statistical inference. Journal of the American Statistical Association 22(158), 209-212.
2. Lames, M.; McGarry, T. (2007): On the search for reliable performance indicators in game sports. International Journal of Performance Analysis in Sport 7(1), 62-79.
3. Hughes, M.; Franks, I. M. (Hrsg.) (2004): Notational Analysis of Sport: Systems for Better Coaching and Performance in Sport, 2. Auflage. Routledge, London. ISBN 9780415290050.

MEASURING

Running field tests properly

Same conditions, two trials, honest measurement error: how jump, sprint and endurance tests become meaningful in a club.

A field test is only as good as the way it is run. Testing on artificial turf in autumn and indoors in spring mainly measures the difference in conditions. Same place, same time of day, same warm-up and same instructions therefore matter more than the most precise device.

Two trials

With two trials and the better or the mean value the result becomes more stable. The difference between trials shows how large a change must be to be more than chance.

Devices and apps

Validated apps exist for jumps; Balsalobre-Fernández and colleagues found good agreement between a jump app and a force plate. For endurance in team sports the Yo-Yo test described by Bangsbo and colleagues is widespread. What matters is always using the same procedure for a person.

With the test sheet

The test sheet guides through the tests with two trials, forms group means, shows the measurement error and compares the trend over the season.

> **Key point:** Same conditions and two trials make a field test meaningful; a change counts only when it is larger than the measurement error.

Tool: https://sport-trainer.at/werkzeuge/en/field-test-sheet.html

References

1. Bangsbo, J.; Iaia, F. M.; Krustrup, P. (2008): The Yo-Yo intermittent recovery test: a useful tool for evaluation of physical performance in intermittent sports. Sports Medicine 38(1), 37-51.
2. Balsalobre-Fernandez, C.; Glaister, M.; Lockey, R. A. (2015): The validity and reliability of an iPhone app for measuring vertical jump performance. Journal of Sports Sciences 33(15), 1574-1579.
3. O'Donoghue, P. (2007): Reliability issues in performance analysis. International Journal of Performance Analysis in Sport 7(1), 35-48.

MEASURING

Video analysis: counting reliably

How to define events in a video so that two people count the same thing, and what to observe when filming other people.

A video shows everything and proves nothing as long as it is unclear what is being counted. Anyone recording turnovers, successful passes or jumps needs an exact description of each event beforehand: when it starts, when it ends and what does not belong to it.

Checking reliability

O'Donoghue recommends checking agreement: two people analyse the same clip, or the same person analyses it again a few days later. If the numbers differ clearly, the description of the event is not sharp enough. Hughes and Franks show how to build such recording systems step by step.

Filming other people

Filming in a club or school means processing personal data. The guidelines of the European Data Protection Board require a clear purpose and a legal basis; for children and adolescents parental consent is needed. Film only what you need and delete recordings once the purpose is fulfilled.

With video analysis

The tool records events live or from the video, evaluates them and compares runs. The video stays on the device and is not transmitted.

> **Key point:** Describe the event precisely first, then count, then check agreement — and record only with a purpose and consent.

Tool: https://sport-trainer.at/werkzeuge/en/video-analysis.html

References

1. O'Donoghue, P. (2007): Reliability issues in performance analysis. International Journal of Performance Analysis in Sport 7(1), 35-48.
2. Hughes, M.; Franks, I. M. (Hrsg.) (2004): Notational Analysis of Sport: Systems for Better Coaching and Performance in Sport, 2. Auflage. Routledge, London. ISBN 9780415290050.
3. Europäischer Datenschutzausschuss (2020): Leitlinien 3/2019 zur Verarbeitung personenbezogener Daten durch Videogeräte, Version 2.0. angenommen am 29. Jänner 2020.

PLANNING

Estimating training load with session RPE

How the load of a session follows from duration and effort, what the weekly value is good for and where its limits lie.

How hard was the session? The answer is more than a feeling. The session-RPE method asks about half an hour after training for the perceived effort on a scale from 0 to 10 and multiplies it by the duration in minutes. Sixty minutes at an effort of 6 give 360 units. The value is simple, needs no device and works for running, strength, games and technique alike.

What the weekly value shows

Summed over the week, the value shows whether load rises, stays level or falls. Foster and colleagues described monotony: if every day is equally hard, recovery is more likely to fall short. A good week has easy and hard days. Haddad and colleagues summarise that session RPE agrees well with other load measures in many sports.

What it does not show

The value is self-reported. It says nothing about technique, sleep or stress outside sport and does not predict injuries. Ratios such as acute to chronic load are disputed; Impellizzeri and colleagues show why they are easily misread. The tool therefore shows every figure with its formula and its limit.

How to proceed

Enter duration and effort after every session, always at the same time after training. After four weeks look at the trend, not at single days. Increase weekly load step by step and plan easier weeks regularly.

> **Key point:** Duration times effort gives the load; what matters is the trend over weeks, not the single day.

Tool: https://sport-trainer.at/werkzeuge/en/load-and-trend.html

References

1. Foster, C. et al. (2001): A new approach to monitoring exercise training. Journal of Strength and Conditioning Research 15(1), 109-115.
2. Haddad, M. et al. (2017): Session-RPE method for training load monitoring: validity, ecological usefulness, and influencing factors. Frontiers in Neuroscience 11, 612.
3. Impellizzeri, F. M. et al. (2020): Acute:chronic workload ratio: conceptual issues and fundamental pitfalls. International Journal of Sports Physiology and Performance 15(6), 907-913.

PLANNING

Health questions before starting to train

When a medical check before starting training makes sense and which warning signs end a session immediately.

Exercise is good for almost everyone, and most people can start without an examination. In 2015 the American College of Sports Medicine simplified its recommendations: what matters is current activity, known cardiovascular, metabolic or renal disease, symptoms and the planned intensity.

When to check?

Anyone who has hardly been active and has such a disease or symptoms should seek medical advice before starting. Anyone who notices symptoms such as chest pain, unusual breathlessness, dizziness or palpitations stops training and has this checked before continuing.

Start slowly

Newcomers begin at light to moderate intensity and increase over weeks. The World Health Organization stresses that even a little activity is better than none.

With the safety tool

The tool asks the health questions before starting, records well-being per week and names warning signs. It makes no diagnosis and does not replace a medical examination.

> **Key point:** Most people can start right away; with known disease, symptoms or warning signs get medical advice first.

Tool: https://sport-trainer.at/werkzeuge/en/safety.html

References

1. Riebe, D. et al. (2015): Updating ACSM's recommendations for exercise preparticipation health screening. Medicine & Science in Sports & Exercise 47(11), 2473-2479.
2. Bull, F. C. et al. (2020): World Health Organization 2020 guidelines on physical activity and sedentary behaviour. British Journal of Sports Medicine 54(24), 1451-1462.

PLANNING

Periodisation without a rigid scheme

What periodisation can achieve, what research says about it and how a season plan with planned-versus-actual comparison stays flexible.

Periodisation means dividing training over weeks and months into sections with different emphases. Classical models prescribe fixed cycles for this. Kiely shows that these models rest more on tradition than on evidence and that individual responses to training vary widely.

What research says

Afonso and colleagues compared meta-analyses: periodised programmes did somewhat better for strength gains in several analyses, but the evidence is limited. Mujika and colleagues recommend planning training, recovery, nutrition and stress outside sport together.

Planning flexibly

A plan is an assumption. Record what was planned and what was actually trained, and adjust the next weeks by disclosed rules: reduce after illness, poor well-being or missed sessions, increase carefully after good weeks.

With the control loop

The tool plans the season for individual, team and extreme sports, compares planned and actual and shows every adjustment rule openly.

> **Key point:** A season plan is a draft: comparing planned and actual and adjusting by clear rules works better than a rigid scheme.

Tool: https://sport-trainer.at/werkzeuge/en/control-loop.html

References

1. Kiely, J. (2018): Periodization theory: confronting an inconvenient truth. Sports Medicine 48(4), 753-764.
2. Afonso, J. et al. (2019): A systematic review of meta-analyses comparing periodized and non-periodized exercise programs: why we should go back to original research. Frontiers in Physiology 10, 1023.
3. Mujika, I.; Halson, S.; Burke, L. M.; Balagué, G.; Farrow, D. (2018): An integrated, multifactorial approach to periodization for optimal performance in individual and team sports. International Journal of Sports Physiology and Performance 13(5), 538-561.

PLANNING

Comparing offers by your own motives

Why people do sport for different reasons, how this helps when choosing a club, gym or course and what makes a fair ranking.

People do sport for very different reasons: for health, for company, for competition, to switch off from everyday life or for the joy of movement. The Bern Motive and Goal Inventory captures such motives; researchers have derived sport types from it that suit different offers.

Fit instead of price

Choosing only by price or distance often does not last. If the offer fits your own motives, the chance of sticking with it rises. So the question is: what matters to me, and which offer delivers exactly that?

Fair ranking

Comparison sites must disclose how they rank. The EU regulation on fairness for business users of online intermediation services requires transparency about the main parameters. On sport-trainer.at a commission does not influence the ranking and is labelled.

With compare offers

The tool compares clubs, gyms, courses and experiences by your motives, discloses the ranking and learns only on your device; the experience finder adds questions to ask the provider.

> **Key point:** Choose by your motives, not only by price — and check whether the ranking is disclosed.

Tool: https://sport-trainer.at/werkzeuge/en/compare-offers.html

References

1. Lehnert, K.; Sudeck, G.; Conzelmann, A. (2011): BMZI — Berner Motiv- und Zielinventar im Freizeit- und Gesundheitssport. Diagnostica 57(3), 146–159.
2. Sudeck, G.; Lehnert, K.; Conzelmann, A. (2011): Motivbasierte Sporttypen: Auf dem Weg zur Personorientierung im zielgruppenspezifischen Freizeit- und Gesundheitssport. Zeitschrift für Sportpsychologie 18(1), 1–17.
3. Europäisches Parlament und Rat (2019): Verordnung (EU) 2019/1150 zur Förderung von Fairness und Transparenz für gewerbliche Nutzer von Online-Vermittlungsdiensten. ABl. L 186 vom 11.7.2019, insbesondere Artikel 5 (Ranking).

PLANNING

How much activity? The WHO guidelines

What the World Health Organization recommends for children, adults and older people and how to turn it into a week.

In 2020 the World Health Organization renewed its guidelines on physical activity. The key message: every move counts, more is better, and long sitting should be interrupted.

Adults

Recommended per week are 150 to 300 minutes of moderate-intensity aerobic activity or 75 to 150 minutes of vigorous activity, plus muscle-strengthening exercises for the major muscle groups on at least two days.

Children, adolescents and older people

Children and adolescents aged 5 to 17 should be active for an average of 60 minutes a day at moderate to vigorous intensity, with strengthening elements on three days. Older people add balance and strength on three days a week to help prevent falls.

Turned into a week

Five times 30 minutes of brisk walking or cycling and two short strength sessions meet the guideline for adults. The training planner builds a plan from this by goal, level and available days.

> **Key point:** For adults 150 to 300 minutes of activity per week plus strength twice; for children one hour every day.

Tool: https://sport-trainer.at/werkzeuge/en/training-planner.html

References

1. Bull, F. C. et al. (2020): World Health Organization 2020 guidelines on physical activity and sedentary behaviour. British Journal of Sports Medicine 54(24), 1451-1462.

GAMES AND TACTICS

Climbing: partner check before every climb

Why most accidents in climbing gyms happen while belaying and lowering and how the partner check prevents them.

Indoor climbing is popular and considered safe. Yet the accident statistics of the alpine clubs show year after year that a large share of accidents stems from errors in belaying and lowering, not from the wall or the equipment.

The partner check

Before every climb both check each other: Is the harness put on correctly and closed? Is the tie-in knot tied correctly and threaded through both tie-in points? Is the belay device loaded correctly and the carabiner locked? Is the rope end knotted?

While belaying

The brake hand always stays on the rope. Lower slowly and evenly, watching the climber. Distraction by conversation is a frequent cause of errors.

With the climbing tool

The tool guides through partner check, knots, fall physics and equipment, with a learning module and notes per country. It does not replace a climbing course.

> **Key point:** Partner check before every climb, brake hand always on the rope, full attention when lowering.

Tool: https://sport-trainer.at/werkzeuge/en/climbing.html

References

1. Deutscher Alpenverein; Verband der Kletterhallen (2026): Kletterhallen-Unfallstatistik 2025. Sicherheitsforschung des Deutschen Alpenvereins, Deutschland und Österreich.
2. Deutscher Alpenverein (2023): Indoor-Klettern Basics. Schulungsbroschüre, Jänner 2023.

GAMES AND TACTICS

Rehearsing plays: from the board to the pitch

Four stages from the drawn play to using it in a match — with timing, passive and active defence and a clear rule for success.

A play on the board always looks good. On the pitch it fails on timing: the pass comes too early, the run starts too late, the defence stands differently from the drawing. Gréhaigne and colleagues describe tactics as decisions in space and time. A rehearsed play takes some of these decisions off the team, but it only works if the team recognises when it fits.

The four stages

First, without opponents at walking pace: learn paths and timing. Second, against a passive defence at match pace. Third, against an active defence with a numerical advantage, for example four against three. Fourth, with equal numbers in a game, with a bonus point for every successful play. Move on only when a stage runs reliably.

What to watch

Give cues about the goal of the movement, not about single body parts; Wulf shows that an external focus of attention supports learning. Agree beforehand what counts as successful, for example a shot from the play.

With the tactics board

Draw the play in phases, run it against man-to-man or zone defence and check where a pass becomes tight. The play sheet puts sketches and drill progression on paper; enter the successes from practice and matches afterwards.

> **Key point:** A play is learned through timing: first without opponents, then against passive, then against active defence, finally in the match.

Tool: https://sport-trainer.at/werkzeuge/en/tactics-board.html

References

1. Gréhaigne, J.-F.; Godbout, P.; Bouthier, D. (1999): The foundations of tactics and strategy in team sports. Journal of Teaching in Physical Education 18(2), 159-174.
2. Wulf, G. (2013): Attentional focus and motor learning: a review of 15 years. International Review of Sport and Exercise Psychology 6(1), 77-104.

GAMES AND TACTICS

Playful activity outdoors

Why challenges, spots and collections motivate people to move, how long the effect lasts and how to keep it going.

Game elements can get people moving. Hamari and colleagues summarise in their review that game elements mostly work, but their effect depends strongly on context and users and often fades once the novelty has worn off.

What lasts

Short-term stimuli fade. Shared goals, fixed meeting points and challenges that grow with ability last longer: a lap in the park that you manage a little faster each week, or a collection of summits over the year.

Safe and fair

Meeting points should be public and easy to reach, leaderboards kept with initials only. For children: play within sight and without tracking other people.

With sport catching

The tool sets up spots, offers challenges with stopwatch and lap times and keeps a leaderboard with initials; summit log and route finder add mountains and routes.

> **Key point:** Game elements get people moving; shared goals, fixed meeting points and growing challenges keep them moving.

Tool: https://sport-trainer.at/werkzeuge/en/sportcatching.html

References

1. Hamari, J.; Koivisto, J.; Sarsa, H. (2014): Does Gamification Work? — A Literature Review of Empirical Studies on Gamification. 47th Hawaii International Conference on System Sciences, 3025–3034.
2. Bull, F. C. et al. (2020): World Health Organization 2020 guidelines on physical activity and sedentary behaviour. British Journal of Sports Medicine 54(24), 1451-1462.

SESSION DESIGN

A warm-up that works

Warming up by the RAMP principle: raise, activate, mobilise, potentiate — and why a fixed programme can help prevent injuries.

Many sessions start with two laps of jogging and some stretching. That warms you up but hardly prepares you for what follows. Jeffreys describes the RAMP principle: Raise, Activate and Mobilise, Potentiate — raise pulse and temperature, activate muscles and mobilise joints, finally increase intensity up to the level of the main part.

What a fixed programme brings

Soligard and colleagues showed in young female footballers that a fixed warm-up programme with running, strength and balance exercises, performed regularly, reduced severe injuries. It worked where it was carried out consistently twice a week or more.

Structure in 10 to 15 minutes

Start with easy running and running drills, then a few squats, lunges and jumps, then sport-specific movements with ball or equipment. Static stretching rather belongs at the end of the session.

With the session builder

The tool contains warm-up forms built this way, runs them with the follow-along clock and voice guidance and can be taken over into the training plan.

> **Key point:** A good warm-up builds up to the main part and is done the same way regularly — only then does it protect.

Tool: https://sport-trainer.at/werkzeuge/en/session-builder.html

References

1. Jeffreys, I. (2007): Warm-up revisited: the ramp method of optimizing warm-ups. Professional Strength and Conditioning 6, 12–18.
2. Soligard, T. et al. (2008): Comprehensive warm-up programme to prevent injuries in young female footballers: cluster randomised controlled trial. BMJ 337, a2469.

SESSION DESIGN

Eating and drinking around training

What helps before, during and after training — based on the sports medicine position statement, without weight goals or calorie counting.

People who train regularly need no special products, but a suitable distribution over the day. The joint position statement of the American College of Sports Medicine and other societies summarises what matters.

Before and during

A carbohydrate-rich meal a few hours before training provides energy; shortly before, something light. In long or very intense sessions drinks and carbohydrates also help during the session. Drink regularly without overfilling.

After

After training carbohydrates and protein support recovery, for example a normal meal with grains, pulses or dairy. Supplements are not needed by most people.

Without weight goals

The nutrition tool works by load and timing, not by calories or weight, and names warning signs that call for professional help.

> **Key point:** Energy before, drink and refuel during long sessions, carbohydrates and protein afterwards — with normal meals.

Tool: https://sport-trainer.at/werkzeuge/en/nutrition.html

References

1. Thomas, D. T.; Erdman, K. A.; Burke, L. M. (2016): American College of Sports Medicine Joint Position Statement: Nutrition and Athletic Performance. Medicine and Science in Sports and Exercise 48(3), 543-568.

SESSION DESIGN

Training balance to prevent falls

Why balance and strength exercises reduce falls in older people and what an effective programme looks like.

Falls are common in older age and often have serious consequences. The review by Sherrington and colleagues shows that exercise programmes reduce the number of falls in older people living at home by about a quarter. Balance and functional exercises work best, often combined with strength.

What it includes

Standing on one leg, walking along a line, rising from a chair without hands, shifting weight forwards and sideways. The exercises should challenge but be safe: with a stable support within reach.

How often

The World Health Organization recommends that people aged 65 and over train balance and strength on three or more days a week. The programme becomes effective over months, not weeks.

With the training planner

The training planner has an age group of 65 and over, builds in balance and strength by disclosed rules and outputs sessions with progression.

> **Key point:** Balance and strength on three days a week, over months, with a safe support — this reduces falls.

Tool: https://sport-trainer.at/werkzeuge/en/training-planner.html

References

1. Sherrington, C. et al. (2019): Exercise for preventing falls in older people living in the community. Cochrane Database of Systematic Reviews 1, CD012424.
2. Bull, F. C. et al. (2020): World Health Organization 2020 guidelines on physical activity and sedentary behaviour. British Journal of Sports Medicine 54(24), 1451-1462.

CLUBS

Remote competition: one task, many places

How clubs and schools announce a competition without travel, score it fairly and record only the data that is needed.

Not every competition needs a shared venue. In a remote competition groups solve the same task in different places: a run over a fixed course, a jump test, a number of repetitions. The results are then merged and scored.

Fair scoring

Fairness comes from a precise announcement: same task, same measurement procedure, same time window. Hopkins describes how large measurement errors are in repeated measurements; differences within that range should not decide rankings. Self-reported results are marked as such.

Little data

Initials, group and result are enough for scoring. Names, dates of birth and places are not needed; this keeps the competition lean in the sense of the General Data Protection Regulation.

With remote competition

The tool announces, collects results, merges files and scores them — without an account. Medals and course models can be produced with the medals tool.

> **Key point:** Same task, same measurement, same time window — and initials instead of names.

Tool: https://sport-trainer.at/werkzeuge/en/remote-competition.html

References

1. Hopkins, W. G. (2000): Measures of reliability in sports medicine and science. Sports Medicine 30(1), 1–15.
2. Hamari, J.; Koivisto, J.; Sarsa, H. (2014): Does Gamification Work? — A Literature Review of Empirical Studies on Gamification. 47th Hawaii International Conference on System Sciences, 3025–3034.
3. Europäisches Parlament und Rat (2016): Verordnung (EU) 2016/679 zum Schutz natürlicher Personen bei der Verarbeitung personenbezogener Daten (Datenschutz-Grundverordnung), insbesondere Art. 4 Z 5, Art. 5, Art. 9, Art. 20 und Art. 25. Amtsblatt der Europäischen Union L 119, 1-88.

CLUBS

Radio at events without mobile coverage

How timing and checkpoint reports work in the terrain without a mobile network and which rules apply to licence-free radio bands.

Forest runs, hill races or orienteering events often lack mobile coverage. Small radio nodes in the licence-free band around 868 megahertz can then pass on split times and short messages over several kilometres, also via a chain of relays.

Rules of licence-free bands

The bands can be used without an individual licence but within limits: the European Commission decision on frequency use and the standard EN 300 220 set transmit power and duty cycle, one percent in many sub-bands. Sending many messages quickly hits these limits.

Plan instead of hope

How long a message is on air depends on the radio settings; the chip manufacturer's design guide gives the formulas. From this follow the number of messages, channel load and relays needed. A field test on the real course does not replace the calculation, and the calculation does not replace a field test.

With radio planning

The tool calculates airtime, channel load, range and relay chain and guides through the field test. For safety tasks at events it does not replace coordinated emergency communication.

> **Key point:** Licence-free bands limit power and airtime: calculate first, then test on the course.

Tool: https://sport-trainer.at/werkzeuge/en/radio-planning.html

References

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CLUBS

Finding a sports hall, pitch or pool

Which hall sizes exist, which standards apply and how open map data helps when searching for sports facilities.

Clubs, schools and groups often look for a hall, a pitch or a pool for a particular activity. What matters is size, equipment and booking: a single hall is enough for gymnastics but not for a handball match.

Hall sizes

DIN 18032-1 gives standard sizes: single hall 15 × 27 metres, double hall 22 × 44 metres, triple hall 27 × 45 metres. In Austria ÖNORM B 2608 and the guidelines of the Austrian Institute for School and Sports Facility Construction apply to planning and construction. Federation competition sizes may go further.

Open map data

Many sports facilities are recorded in open map data that may be used freely under the Open Database License, with attribution. Entries are not always complete; check sizes and opening hours on site.

With sports facilities

The tool searches halls, pitches and pools in open map data, shows sizes and standards, helps with booking and names performance centres.

> **Key point:** First clarify which size the activity needs, then search — and confirm map data on site.

Tool: https://sport-trainer.at/werkzeuge/en/sports-facilities.html

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CLUBS

Club training: managing load by group

How club coaches manage the load of whole groups, use attendance and take differences in development into account.

In a club hardly anyone trains alone. A coach with twenty children cannot keep twenty individual plans. She can, however, record the load of the group: duration and average effort per session, plus attendance. This shows who has trained a lot and who little.

Differences within the group

Children of the same age can be years apart in physical maturity. Malina and colleagues and the consensus statement of the International Olympic Committee on youth athletic development advise adapting load and expectations to this and avoiding early specialisation.

What helps in practice

Split the group into two levels for intensive parts, record attendance and plan a gradual return after holidays or illness.

With team and season

The tool manages groups, attendance and load per group and plans the sessions of the season.

> **Key point:** In a club, management works through group, attendance and gradual return; maturity counts more than the year of birth.

Tool: https://sport-trainer.at/werkzeuge/en/team-and-season.html

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