ORIGINAL ARTICLE

INFLUENCE INTERMITTENT TRAINING BY POST ONE PHYSICAL FITNESS IN PERIOD OF PRECOMPETITIVE HANDBALL PLAYERS CONGOLESE COASTAL

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ABSTRACT

Objective: Our survey has been led in order to act as tool to study the variables of the composition, bodily and of the physical capacity in 44 Congolese handball players in hot and humid ambiance (temperature = 32°C, relative humidity = 55%). **Methods**: 44 players left according to the compartments (stations), had taken part in our survey their physical charcteristics are: Height (mean = 178 to 181 cm) and the weight: (mean = 71 to 81kg). Players are submitted outside of the measures of the bodily mass index (BMI), of the middle arterial pressure (PAM), of the IR, and of the maximal consumption of oxygen (Vo2max) an indication of the very representative cardiovascular physiology state. **Results**: Our results showed that the coastal environment, present a better improvement of the physiological parameters in relation to the non-coastal environment. The values before and after the practice have presented a highly significant difference (P <0.001). **Conclusion**: Our results show that the intermittent **drive** in the littoral improved physical capacities of the hand players, capacities of jumps, sprint and O_2max.
Key words: *Adaptation, Intermittent Practice, Physical Faculty, Precompetitive*.

1. INTRODUCTION

The present stakes permit to clarify the handball player in these individual tasks on the area of game in the different actions of game in attack as in defense ask a suitable energizing path, in order to defeat the elevated rates of lactate during one match [1 , 2 , 3]. Are these rates a lot comparable, or even lower to those produced at the time of an effort to $\dot{V}O_2$max, and well far from the securities characterizing some (lactic effort). He it is known that the technical gestures, the passageways of game according to the compartments and the holds of information during the match, are the different stakes of the handball to the 21, these linked different actions of game to the station often take place in an exploding manner with very elevated intensities, this while taking into account the innovations to the rules of game [4, 5, 6, 7].

Although the brief and violent efforts are of maximal supra intensity, the involvement curbed of the lactic anaerobic metabolism that expresses itself by the short length of the strains and intermittent [8]. It permits the fast elimination of the lactic acid and warns his/her/its accumulation [9].

The work of power maximal lactic anaerobic is sufficient to repulse, the lactic doorstep [10]. But however, the methodological gait of the intermittence game to the handball in coastal environment divides a lot of trainers, it appears and seems inappropriate.

It is why, for to answers to this reoccupation of the trainers in Congo, our hypothesis focuses on the implication of the physical factors, tactical and physiological technico bases the hands ball in of the phase of preparation of a competition would explain it self, largely by the improvement of the performances during one match or a high-level meeting.

This survey would permit to verify the adaptations of the intense and intermittent game phases, this alternation suggests a reconstruction of the adenosine Triphosphate (ATP), muscular thanks to the deterioration of the phosphocreatine (PCr) with an involvement possible of the glycolic, the path aerobe only intervenes during, the phases of slow walk and rest activate.

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2. MATERIAL AND METHODS

The survey has been achieved from August 6 to November 6, 2010 to black Tip and in Brazzaville, precisely in the Omnisport stage of Ouenzé, Arrondissement 5 of the star of Congo, to black tip to the stage of the High school Victor Augagneur for the teams of Munisport and Patronage. The choice of the black peak city took a rest sure:

- The soft enough climate the day, about 23,8° to 30° in the year, the independence of the seasons and an even softer temperature in the evening (about 22° to 26°) ;
- Situated on a tray interrupted of swampy valleys, his/her/its altitude is over of 20 meters to the of the sea level to 4°47 and 11,20° ;
- Situated the Atlantic Ocean very close to, we constituted the experimental group, whose topics should present features of the coastal environment there. of other criteria's were:
- The number of teams of handball of high level ;
- The existence of modern sporty infrastructures.

The locality of Brazzaville has been kept like capable to shelter the control group, this to justify the thematic of our associated survey at the coastal environment.
C group (n = 7) average values more or less standard duration of the experimental group of measures anthropometry;
E group (n = 8) average value more or less standard duration of the group witnesses of anthropometric measures.

IT was about 64 topics handball players of these three teams distributed like suit:

- 21 arrive ;
- 14 goals ;
- 11 pivots and 18 Wing.

At which the cardiac balance didn't reveal any clinical anomaly, radiological to participate in this survey. In the absence of a national committee of ethics, this survey has been approved by the Sporty Medical Company of the Physiologists of Congo (SMSPC), of the Academic center of the Superior institute of Physical education and Sports woman (ISEPS).

2.1. Measures and procedure experimental

The program of intermittent practice of anaerobic type (muscular backing session, development of the pure speed and the gestural speed) and aerobic (collective tactics for the staying, race and individual technical for the maximal power) of a length of 20 weeks, take place at the rate of 10 weekly hours distributed on 5 sessions of 2 hours each.

Permits in practice medical sportswoman current to discover at not superior the sensitive handball players of the tensional anomalies in 280 Hgs mm and a cardiac frequency expressed in beating has been measured with the help of a portable cardio-frequency meter (Detective novel x more TM), however, the experimental group has been submitted to a practice based on a situation of match arranged in 4 against 4 that required a big solicitation cardio-respiratory in the different stations.

The one raised at one minute to the decade of the test, the nominal scale of appreciation by the capacity of recuperation defined by this indication, is the one advisable by the Company French of sport Medicine (SFMS).

Finally, the arterial pressure has been measured to the right arm with the help of a sphygmomanometer to numerical display (Phrodex Paul st, Minnesota, USA), the middle arterial pressure (MAP) has been calculated from the systolic and diastolic arterial pressure (DAP), while using the formula Plast F. Guide of sport cardiology [11].

2.2. Analysis statistical

The results have been expressed standard duration on average more or less; the averages of physiological parameters have been done by variance analysis (ANOVA) to a factor and three modes. When the ANOVA was significant, the doorstep of significativity of the tests was to ($P < 0.05$), the software STATVIEW 5 (Delta - Saft), has been used for the set of the statistical analyze that amounts to the calculation of the F coefficient of Fischer-Snedecor.

3. RESULTS

Anthropometric, cardiovascular securities and the physical capacity compared to the rears before and after the cycle of practice as mean standard duration between the controls group (CG) and the group more or less experimental group (EG).

Table 1: Comparison of the features studied groups before and after the period of practice between different stations.

Variables	GC (n = 6)	EG (n = 8)	P
Anthropometric			
Cutting (m)	1 .81 ± 0.44	1.83 ± 0.52	NS
Weight (Kg)	71.80 ± 3.98	77.58 ± 2.78	0.05
BMI (Kg/m^2)	22.68 ± 1.72	23.69 ± 1.64	NS
Cardiovascular respiratory			
$\dot{V}O_2$max (ml/kg.min-1)	50.66 ± 2.0	52.66 ± 1.02	NS
$\dot{V}O_2$max (l/min)	4.00 ± 0.43	5.25 ± 0.2	0.001
PAM (mm Hg)	47.21 ± 4.56	40.22 ± 3.5	NS
Physical capacities			
PAAM (W)	112.834 ± 141.58	101.200 ± 102.56	NS
HD (n)	25.6 ± 0.16	2.52 ±0.16	NS
FEB (n)	48.13 ± 2.65	52.13 ±1.65	0,01
PAL (W)	478.86 ± 67.82	539.82 ± 62.00	NS
FEJ (S)	4.33 ± 0.39	4.53 ± 0.27	NS

CG: controls group; **EG:** experimental group**; ARR:** arrive; **GAR:** goal; **PIV**: pivot; **AIL:** wings; **BMI**: Body Mass Index, **PAAM**: Power Anaerobic Lactic Maximal, **HD:** horizontal détente; FEB**:** Exploding Strength of the Arms (traction of hand; pomp) ; **PAL**: Power Aerobic Lactic; **FEJ:** Exploding strength of the legs. **NS**: no significantly different between the gotten securities before and after the practice.
*: significant difference to (P < 0.05); * *: highly significant difference between the gotten securities before and after the P practice < 0.01; * * *: highly significant difference between the gotten securities before and after the practice.

Table 2: cardiovascular securities and biometric compared of the pivots before and after the practice in the two groups: CG and EG under the shape more however less standard duration.

Variables	CG (n = 4)	EG (n =5)	P
Anthropometric			
Cutting (m)	1.78 ± 0.30	1.79 ± 0.50	NS
Weight (Kg)	69.30 ± 5.45	70.22 ± 4.23	NS
BMI (Kg/m^2)	21.75 ± 1.59	21.70 ± 1.50	NS
Physiological			
VO_2 max (ml/kg.min-1)	45.70 ± 1.20	49.66 ± 1.43	0.01
IR	3.03 ± 1.42	2.03 ± 1.67	NS
VO2max (l /min)	3.38 ± 0.25	4.08 ± 0.5	0.05
PAM (mm Hg)	60.38 ± 5.92	50.28 ± 2.8	0.05
Physical capacities			
PAAM (W)	902.34 ± 140.23	902.24 ± 134.23	NS
HD (n)	2.18 ± 0.23	2.17 ± 022	NS
FEB (n)	29.40 ± 7.33	27.40 ± 2.34	NS
PAL (W)	331.32 ± 27.7	370.37 ± 28.00	0.05
FEJ (S)	4.98 ± 0.33	4.90 ± 0.35	NS

NS: no significant difference between the gotten securities before and after the entrainment; **: highly significant difference between the gotten securities before and after the practice to (P < 0.01). ; * * *: highly significant Difference between the gotten securities before and after the practice to (P < 0.001); **CG**: controls group; **EG**: experimental group; **O_2max**: maximal consumption of oxygen; **IR:** indication of recuperation; **PAAM**: power anaerobic lactic maximal; **HD:** horizontal detente; **FEB:** exploding strength of the hands; **PAL:** power anaerobic lactic; **FEJ:** exploding strength of the legs.

Table 3: cardiovascular securities and biometric compared of the wings before and after the cycle of practice of two groups of control group and experimental group under the shape more or less standard duration.

Variables	CG (n = 4)	EG (n =4)	P
Anthropometric			
Cutting (m)	1.81 ± 0.65	1.80 ± 0.40	NS
Weight (Kg)	81.29 ± 2.47	82.39 ± 2.02	NS
BMI (Kg/m^2)	25.15 ± 1.64	26.15 ± 1.32	NS
Respiratory Cardio			
VO_2 max (ml/kg.min-1)	52.46 ± 3.52	47.6 ± 3.58	NS
IR	1.6 ± 0.4	3.01 ± 0.34	0.05
VO_2max (l /min)	4.00 ± 0.31	3.40 ± 0.1	0.001
PAM (mm Hg)	42.85 ± 4.76	42.82 ± 2.32	NS
Physical capacities			
PAAM (W)	1123.34 ± 120.81	1214.32 ± 1.20	NS
HD (n)	2.26 ± 0.13	2.25 ± 0.14	NS
FEB (n)	56.81 ± 2.01	49.71 ± 6.86	0.05
PAL (W)	395.90 ± 64.07	443.82 ± 52.21	NS
FEJ (S)	4.77 ± 0.42	5.01 ± 0.4	0.05

NS: difference no significant between the gotten securities before and after the cycle of entrainment; *** * ***: highly significant difference between the gotten securities before and after the cycle of practice of the wings to (P < 0.001); **CG**: controls group; **EG**: experimental group **; VO_2max**: maximal consumption of oxygen; **BMI**: Body Mass Index; **IR:** indication of recuperation; **PAAM:** power anaerobic lactic maximal; **HD:** horizontal detente; **FEB:** exploding strength of the hands; **PAL**: power anaerobic lactic; **FEJ**: exploding strength of the legs.

Table 4: Value of the physical capacities compared between the control group (CG) and experimental group (EG) at the rears before and after the cycle of practice.

Variables	CG (n = 6)	EG (n = 6)	P
Anthropometric			
Cutting (m)	1.80 ± 0.40	1.77 ± 0.2	NS
Weight (Kg)	71.80 ± 3.18	70.67 ± 5.67	NS
BMI (Kg/m^2)	22.68 ±1.72	22.51 ± 1.70	NS
Respiratory Cardio			
VO_2max (ml/kg.min-1)	54.85 ± 2.03	56.66 ± 1.20	NS
IR	1.88 ± 1.01	2.02 ± 1.00	NS
VO_2max (L/min)	3.19 ± 0.44	5.26 ± 0.4	0.05
PAM (mm Hg)	47.21 ± 7.58	48.21 ± 2.30	NS
Physical capacities			
PAAM (W)	1112.96 ± 222.80	1100.00 ± 200.01	NS
HD (n)	2.73 ± 0.33	2.86 ± 0.43	NS
FEB (n)	42.16 ± 8.81	42.17 ± 2.12	NS
PAL (W)	367.49 ± 78.90	367.48 ± 58.58	NS
FEJ (S)	4.15 ± 0.21	5.00 ± 0.1*	0.01

BMI: Body Mass Index. **PAAM:** Power anaerobic lactic associated to the vertical detente; **HD:** horizontal detente; **FEB**: exploding strength of the arms (pomp's); **PAL:** Power Anaerobic lactic; **FEJ:** exploding Strength of the jambs.
*: significant difference between the gotten securities before and after the practice to (P < 0.05); *** ***: highly significant difference between the gotten securities before and after the cycle of practice to (P < 0.01); *** * ***: highly significant difference between the gotten securities before and after the practice to (P < 0.001).

4. DISCUSSION

This research had for goal to value the present limitations of the physiological and metabolic adaptations to the intermittent effort of the Congolese handball players high-level during the continental competitions [2-12]. So, that the physical capacities would be associated to a physical maladjustment, of the procedures of practice to the station occupied in period linked precompetitive to the features of the effort of the detection and the chronology [13]. It is also admitted that, the sporty practice makes by means of the exercises maximal coins induced, an increase of the pulmonary ventilation combined of the respiratory frequency and the current volume [14]. Otherwise, this type of practice increases the alveolar surface so that the oxygen is captured by hemoglobin, also increase with the practice aerobe [4], improving thus, the blood capacity of oxygen transportation [15].

The chronic cardiovascular adaptations to the effort are obvious**.** They can be more important in hot and humid ambiance and can translate however by the reduction of the cardiac frequency of rest, of the systolic, diastolic and middle arterial pressures, partner to a least reduction of the diastolic arterial pressure [5].
However, the improvement of the bodily composition to the practice is bound to the growth of the number of the structure of the muscular fibers and, leaving from the quantity of water in the sectors inter cellular and interstitial of the muscles [16].

To this topic, Wilmore and Costill (2010) have made notice that the practice increases the number of structures and the section of the muscular fibers [14]. However, the interstitial sectors of the muscle contiennent60à 75% of the weight bodily [17]. What comes back to say that the structural increase of the muscle to the practice influences considerable way the skinny mass and by way of consequence, improve the relative value of it $\dot{V}$O2max [18]. The heart rate of the high level sport increases very quickly has effort and decrease also quickly has active recovery in littoral medium. Thus, therefore, this stability of the index of recovery can be due to the environmental conditions of the littoral medium modified by undoubtedly of the pollutants moreover the oil exploitation of ' ' djeno' '.

To this topic, Estrade (2008) returned that the main effects of the pollution exercise themselves on the respiratory device by the ozone, the dioxide of suffers that are the aggressive gases for the respiratory mucous membrane, that reach the periphery of the pulmonary tree easily, while provoking an inflammation of this bronchial mucous membrane [19].

Done take into consideration that proceeds, can we say that the improvement of him $\dot{V}$O2max added on .2max to the weight to the practice among our subjects who is bound more to the improvement of the bodily composition and notably of the weight. Does the intermittent practice improve, probably, a lot more the relative value of it $\dot{V}$O2max that the absolute value because the first is returned to the bodily weight who on his/her/its turn increases during the practice [20].

To this subject, Buchheit (2008), returned that the intermittent practice based on the handball, is an efficient method for the improvement of it $\dot{V}$O2max [21]; does this technique of work by intermittent permit to improve the staying aerobe efficiently while respecting the internal logic of the activity [22].

Otherwise, the results of the recuperation meadow indication and post practice didn't show a difference so much significant in the control group that in the one experimental. However, the compared results before and after a cycle of preparation of the handball players to the rear station between the groups experimental and control Weight [(71.80 ± 3.98 kg vs. 77.58 ± 2.78kg); $\dot{V}$O2max (4.00 ± 043 l/min-1) ; FB (48.13 ± 2.66 vs. 52.13 ± 1.65) ($P < 0.05$; $P < 0.001$; $P < 0.01$)] (Table 1). Among the guards did the results show highly significant differences however, to the level of the VO2 absolute max (3.38 ± 0.25 l/min vs 4.08 ± 0.5 l/min) ; PAL (331.32 ± 27.7 W vs. 370.37 ± 28.00 W) ($P < 0. 05$) (Table 2), do these differences can explained himself because of the inshore environment and the presence of the sand at the time of a practice plyometric, does it suit to signal that the weight to a big influence on him $\dot{V}$O2max and the lactic anaerobic power [21]. With regard to, the station of pivot the differences were significant IR (1.6± 0.4 vs. 3.01± 0.34) $\dot{V}$O2max (4.00 ±0.31 vs. 3.40 ±0.1 l/min), FB (56.81 ±2.01 n vs. 49.71 ±6. 86 n), FE (4.77 ±0.42 vs. 5.01± 0.4 S) ($P < 0.05$; $P < 0. 001$) (Table 3). is It able to explain itself by the fact that the temperature to the level of the Atlantic coastline had soft reduced the hyper sweating skinny the effort, the marine wind composed of ions (iodine), do influence the alveolar at the time of the transportation of the oxygen toward blood.

To this topic, Wu (2000) returned that the sea air, encourage the dilation of the capillaries at the seaside and accelerate the respiratory exchanges between the human body and the middle to which evolves these topics [23]. Indeed, this environment presents some assets physical characteristics notably the marine air contains the negative ions stimulate the thyroid glands and the respiratory ways, encouraging the sparkling exchanges [24]. To this topic, Estrade (2008) returned that the marine wind during the low temperatures permits to dissipate the pollutants so far and purify air [19]. It permits of more than once to justify our outgoing hypothesis that: the coastal environment improves specific way the performance by station.

In short, the Congolese coastline permits to maintain the plasmatic volume in order to assure the best working of the sweating and the circulation, improving the physical performance thus especially in aerobe as oseverved in a study of Mc'ardle (2001) as for the wings have the significant differences observed between the two groups (CG and EG): The O2max to the weight O_2max (3.19 ± 0.44 vs. 5.26 ± 0.4 l/min), FE (4.15 ± 0.21 vs. 5.00 ± 0.1 S) ($P < 0.05$; $P <$

0.01) (Table 4) to the level of the exploding strength does it justify itself by the counterattack that a fatal weapon is in phase offensive to the handball [15-5]. The analysis of these results permitted to keep that:

- the quality and the intensity of the intermittent practice play a primordial role in the improvement of the staying speed of the handball players,
- The insufficiency of work on the lactic anaerobic power is a factor limiting the performance,
- the intermittent practice by station and a continuous body building permits the optimization of the performance that is based on understudies (post/post) to palliate the insufficiency of the PAL.

5. CONCLUSION

From the results gotten we can sustain reasonably that the specific program of proposed intermittent practice had some effects dependently on the physiological parameters of the bodily component, in light of these results, it suits to signal that the temperature and the relative humidity constitute factors responsible for the disruptions and the physiological improvements in coastal environment.

Thus, this plan will include objectives of performance and practice, by discontinuous efforts followed of a plan in the programming and the realization of a gait socio constructivist. (Real situation of game), practice by intermittent while keeping the inescapable constitutes elements of the sport collective, while putting the handball player in position to learn by making it.

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Abbreviation list

SFMS: Company French of Sport Medicine;
MAP: Middle Arterial Pressure;
DAP: Diastolic Arterial Pressure;
ANOVA: Variance Analysis;
ARR: arrive;
GAR: goal;
PIV: Pivot;
AIL: wings;
BMI: Body Mass Index;
CG: Control Group;
EG: Experimental Group
PAAM: Power Anaerobic Lactic Maximal;
FEB: Exploding Strength of the Arms (traction of hand; pomp);
HD: Horizontal Detente;
PAL: power aerobic lactic;
FEJ: Exploding Strength of the Legs;
NS: no significant difference between the gotten securities before and after the practice;
O_2max: maximal oxygen consumption;
RI: indication of recuperation;
PAAM: Power Lactic Acid Maxima;
FEB: Exploding Strength of the Hands;
PAL: Power Anaerobic Lactic;
FEJ: Exploding Strength of the Legs.

8. REFERENCES

1. Bongbele J., and Moutina R. Arterial tension of the children French and Congolese Influence of the conditions of life. *Kinesiology*, 2002.
2. Oniangue R. Survey of the physical qualities of the Congolese handball players and Belgian (Thesis of Doctorate in physical education).1986.
3. Pradet. The preparation physical collection teaching, ed. INSEP. 2002; pp 33.
4. Billat V. Influence training for performance: a scientific and empirical practice. Special recommendation for middle and long distance running. 2001.

5. Bayer C. Handball: the player's formation, 5eme Paris edition, vigot, 2003.
6. Tessier F. Musculation enzyme release does not predict muscle function impairment after triathlon. *journal sports Med Phys. Fistness.* 2007; 39: 133-139.
7. Doutreloux J.P. Physiology and Biology of Sport. Éd. Vigot, 2007.
8. schimitt M. Stock of the faculty of the sport of Nancy; effects of the tactical combinations on the energizing expense. Scientific symposium, 2006.
9. Bonen. Biochemistry of the physical and sporty activities éd. Boeck. 2000.
10. Balson Pd., Seger J.Y., and Ekblon B. To physiological fassessment elite handball. *J Sport Sci*. 1999.
11. Baillere J.B. Treated of physiology considered like science of observation, 2009; vol 7.
12. Dotte. Qualitative and quantitative analysis of the motor actions to the Handball University of Strasbourg, 2002.
13. Dietrich H. The control motor: organization and control of the movement. Paris, France: Press, 2010.
14. Wilmore J. h., and Costill D. Physiology of sport and the exercise translates by Delamarche P. Paris De Boeck University, 2000.
15. Mc'ardle w., And Katch F. Physiology of the physical activity: Energy nutrition, Paris performance: Vigot 2001.
16. Delavier F. Guide of the movements of musculation: anatomical approach. Éd Vigot. 2004; Vol 2.
17. Duhamel J.F. Hydration and sport of competition at the child. 2000; Available on: Http: / / WWW.Centre - evian.com / Doc fon / doc-sciences,.
18. Beaumont to., and Drumstick P. Biology and physiology animal, éd Dunod Paris, 2007.
19. Estrade J.P. Isolated tubal torsion: About tree cases. Feb 2008; 36(2): 173-3.
20. Clarkson PM., Nosaka K., and Braun B. Muscle function after exercise in duced muscle damage and rapid adaptation. *Medecine and science in sports and Execise*. 1992; 24(5): 512- 520.
21. Buchheit Mr. The 30-15 Intermittent Fitness test: accuracy heart individualizing interval training of young intermittent Sport player. *J Strength Cond. Res.* 2008.
22. Parlebas P. To warm up to enter in the activity: a stake of formation, 2004.
23. Wu R.S. Hypoxia: from molecular responses ecosystem Answers Mar Pollute Bull, 2002.
24. Valverde J.C., Lopez P., and Costa Ruiz J. Effect of periodical water current one the phasing of demand feeding rhythm in seam bass. *dicentrat chuslabrax physiology Behave*, 2005; 20.

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